

EXHIBIT H-3

From: service=collisionsciences.ca@mail.collisionsciences.ca [service=collisionsciences.ca@mail.collisionsciences.ca]
on behalf of Collision Sciences <service@collisionsciences.ca> [service@collisionsciences.ca]
Sent: 5/12/2020 2:02:24 PM
To: Brian Hsu [bhsu@collisionsciences.ca]
Subject: ALERT - Undecoded Subaru Vehicle Model Scanned

CrashScan

Accident Detector

Undecoded Subaru Vehicle Model Scanned

This is a Subaru that uses cable 614 or 616. Use CDR replay to decode information. The report has been placed under review.

[View Report](#)

Vehicle
2017 Subaru Crosstrek

VIN
JF2GPABC5HH223768

The Collision Sciences team is always here to help.
Please contact service@collisionsciences.ca with your questions.

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From: service=collisionsciences.ca@mail.collisionsciences.ca [service=collisionsciences.ca@mail.collisionsciences.ca]
on behalf of Collision Sciences <service@collisionsciences.ca> [service@collisionsciences.ca]
Sent: 3/3/2021 7:59:04 PM
To: Brian Hsu [bhsu@collisionsciences.ca]
Subject: ALERT - FCA Cable 387 & 821 Module Scanned

CrashScan

Accident Detector

FCA Cable 387 & 821 Module Scanned

This vehicle uses FCA cable 387 & 821. Check data decoding scheme with CDR replay. The report has been placed under review.

[View Report](#)

Vehicle
2018 Dodge Journey

VIN
3C4PDDEG7JT296610

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**Collision Sciences MANAGEMENT REPORT**

EXPOSURE, RISK & DECISION SUPPORT

Company: StreetDelivery**Reporting Period:**

2021-07-01 to 2021-07-31

Generated: 2021-08-02 15:55:32 (UTC)**LIST OF PURCHASED REPORTS**

This section shows the list of vehicle reports purchased during the reporting period.

Report Info	Claim Number	Vehicle	Investigator	Links (Tags)	Fee
2021-07-01 (NM-00043)	067019-GM	2017 Toyota RAV4 JTMJJREV9HD088254	Robert Burton	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-07-01 (AMI-00010)	60004085828-03	2012 Jeep Grand Cherokee 1C4RJFAG9CC267479	Amy Slater	Download Full Report (Delta-V, EDR Speed, Title Issue)	USD \$270
2021-07-01 (LMC-US-00769)	044058206	2012 Chevrolet Impala 2G1WG5E39C1140703	Dan Eddy	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-07-02 (LMC-US-00775)	045639285	2017 Lexus IS JTHBA1D22H5051052	Lizza Cuevas	Download Full Report (Delta-V, EDR Speed, Junk/Salv./Ins.)	USD \$270
2021-07-02 (LMC-US-00777)	641112961	2017 Nissan Maxima 1N4AA6AP3HC445526	Steve Spilka	Download Full Report	USD \$270
2021-07-02 (LMC-US-00779)	046027249	2013 Dodge Avenger 1C3CDZAB7DN651984	Michael Romano	Download Full Report (FF Speed, DTCs)	USD \$270
2021-07-02 (LMC-US-00782)	046030830	2021 Audi A4 WAUDAAF42MA077058	Jon Rousseve	Download Full Report (DTCs)	USD \$270
2021-07-02 (LMC-US-00784)	045979799	2008 Saturn Vue 3GSDL63788S591644	Ed Lemke	Download Full Report (FF Speed, DTCs)	USD \$270

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2021-07-02 (LMC-US-00787)	045588522	2015 Honda Civic 19XFB2F53FE080395	John Guthrie	Download Full Report (Delta-V, EDR Speed, Accident)	USD \$270
2021-07-02 (LMC-US-00793)	045629111	2010 Toyota Corolla 1NXBU4EE4AZ302292	Brad Miller	Download Full Report (Delta-V, EDR Speed, Junk/Salv./Ins., Title Issue, Accident)	USD \$270
2021-07-03 (SA-US-00072)	AU-0000000-624071	2011 Mazda CX-9 JM3TB2DV6B0331376	Scott Bagger	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-07-05 (LMC-US-00796)	045832602	2018 Ford F-250 1FT7W2B62JEC72323	Danny Worsham	Download Full Report	USD \$270
2021-07-05 (LMC-US-00799)	045761362	2015 Chevrolet Sonic 1G1JA5SH3F4206702	Oscar Wallace	Download Full Report (Delta-V, EDR Speed, FF Speed, DTCs)	USD \$270
2021-07-06 (SA-US-00075)	AU-0000000-635344	2012 Hyundai Sonata 5NPEB4ACXCH336519	Dan Clemens	Download Full Report (DTCs)	USD \$270
2021-07-06 (LMC-US-00805)	045931608	2018 Chevrolet Equinox 2GNAXHEV2J6235955	PJ Thagard	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-07-07 (LMC-US-00808)	23783351	2010 Ford F-150 1FTMF1CW9AKE40858	Eric Castiglioni	Download Full Report (DTCs)	USD \$270
2021-07-07 (LMC-US-00811)	045911383	2016 Honda CR-V 5J6RM4H53GL049067	Amy Slater	Download Full Report	USD \$270
2021-07-07 (SA-US-00078)	AU-0000000-627845	2018 Ford F-250 1FT7W2B68JEC64081	Rich Tenney	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-07-07 (LMC-US-00814)	046116846	2018 Mazda CX-5 JM3KFBCM4J1461481	Dan Clemens	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270

2021-07-08 (AMI-00013)	60004094264-04	2017 Toyota Corolla 5YFBURHE5HP676348	Amy Slater	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-07-09 (LMC-US-00817)	044740546	2016 Chevrolet Malibu 1G1ZB5ST8GF208231	Michael Romano	<u>Download Full</u> Report (DTCs)	USD \$270
2021-07-09 (LMC-US-00820)	045833331	2016 Audi A4 WAUFFAFL2GN009504	Michelle Petrillo	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-07-09 (SA-US-00081)	AU-0000000-636368	2019 Ford F-150 1FTEW1CP9KGD24123	John Guthrie	<u>Download Full</u> Report (DTCs)	USD \$270
2021-07-10 (NM-00045)	053622-GM	2018 Dodge Grand Caravan 2C4RDGEG7JR282736	Amy Slater	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-07-12 (LMC-US-00827)	046032106	2016 Toyota Avalon 4T1BK1EB0GU220207	Holly Covey	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-07-12 (LMC-US-00829)	045810545	2016 Nissan Pathfinder 5N1AR2MM7GC617869	Ian Talton	<u>Download Full</u> Report (Junk/Salv./Ins.)	USD \$270
2021-07-13 (LMC-US-00833)	046050553	2017 Toyota Camry 4T1BF1FK5HU749351	Denise Littman	<u>Download Full</u> Report (Delta-V, EDR Speed, FF Speed, DTCs)	USD \$270
2021-07-14 (LMC-US-00841)	046139723	2015 Toyota RAV4 2T3BFREV4FW237210	Eric Castiglioni	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-07-16 (LMC-US-00843)	041098398	2011 RAM 1500 1D7RV1GT4B5679105	Ed Lemke	<u>Download Full</u> Report (Title Issue)	USD \$270
2021-07-16 (LMC-US-00849)	046063013	2017 Honda HR-V 3CZRU5H71HM705726	Rich Clarke	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$270

2021-07-16 (LMC-US-00852)	046002645	2007 Ford Expedition MAX 1FMFK15597LA10478	Scott Bagger	Download Full Report (DTCs)	USD \$45
2021-07-17 (LMC-US-00855)	046092290	2016 Chevrolet Malibu 1G1ZE5ST9GF327302	Dan Eddy	Download Full Report	USD \$270
2021-07-19 (LMC-US-00858)	045422057	2015 Chevrolet Tahoe 1GNSKBKCXFR233238	Steve Spilka	Download Full Report	USD \$270
2021-07-19 (LMC-US-00864)	045966075	2019 Ford Ranger 1FTER4FH4KLA36338	Kevin Sellers	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-07-19 (LMC-US-00861)	044059655	2002 Cadillac Deville 1G6KD54Y22U175133	Dan Eddy	Download Full Report (FF Speed, DTCs)	USD \$270
2021-07-19 (LMC-US-00869)	046074130	2004 Lexus ES JTHBA30GX45003676	Cindy Lawrence	Download Full Report (Delta-V, DTCs, Title Issue)	USD \$270
2021-07-19 (LMC-US-00872)	046152297	2019 Chevrolet Spark KL8CB6SA2KC764796	Ed Lemke	Download Full Report	USD \$270
2021-07-20 (LMC-US-00874)	046064328	2017 Nissan Altima 1N4AL3AP9HC144557	Denise Littman	Download Full Report (DTCs)	USD \$270
2021-07-20 (LMC-US-00880)	046082017	2016 Toyota Tacoma 5TFCZ5AN0GX013004	Keith Matherne	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-07-20 (LMC-US-00883)	046064687	2021 Toyota RAV4 2T3H1RFVXMC125310	Melodie Arispe	Download Full Report	USD \$270
2021-07-20 (SA-US-00084)	AU-0000000-636486	2014 Ford F-250 1FT7W2B64EEB53128	Brad Miller	Download Full Report (DTCs)	USD \$270
2021-07-21 (LMC-US-00877)	046086835	2009 Mercury Grand Marquis 2MEHM75V49X630041	James Worthen	Download Full Report (Delta-V, DTCs)	USD \$270
2021-07-21 (LMC-US-00888)	045556782	2015 Mercedes-Benz GLK-Class WDCGG8JB4FG347320	James Worthen	Download Full Report (Delta-V, EDR Speed)	USD \$270

2021-07-22 (PNC-US-00005)	21ETXP0000021	2018 Chevrolet Cruze 1G1BE5SM2J7205568	Daniel Duchene	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-07-22 (SA-US-00087)	AU-00000000-635571	2019 Ford F-250 1FT7W2B69KEG73045	John Guthrie	<u>Download Full</u> Report	USD \$270
2021-07-23 (LMC-US-00891)	041495331	2010 Toyota Highlander 5TDYK3EHXAS014385	Neil Paz	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-07-23 (LMC-US-00894)	046162011	2011 Ford Explorer 1FMHK7D87BGA24257	David Eismont	<u>Download Full</u> Report (DTCs)	USD \$270
2021-07-26 (LMC-US-00900)	046244610	2021 Honda Passport 5FNYF8H28MB007467	Robin Hansen	<u>Download Full</u> Report (DTCs)	USD \$270
2021-07-26 (LMC-US-00902)	046033695	2015 Mercedes-Benz CLA- Class WDDSJ4EB9FN210640	Neil Paz	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-07-27 (LMC-US-00905)	046064687	2018 Hyundai Elantra 5NPD74LF6JH326507	Kevin Sellers	<u>Download Full</u> Report (Delta-V, EDR Speed, Junk/Salv./Ins., Title Issue)	USD \$270
2021-07-27 (LMC-US-00907)	046084295	2014 Chrysler Town and Country 2C4RC1BG3ER139499	Denise Littman	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-07-27 (LMC-US-00910)	046102615	2015 Dodge Challenger 2C3CDZDJ3FH821921	Howard Stephenson	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-07-28 (LMC-US-00913)	045622966	2008 Ford Explorer 1FMEU73E18UA35690	Jack Fobes	<u>Download Full</u> Report (Delta-V, EDR Speed, FF Speed, DTCs, Junk/Salv./Ins., Title Issue)	USD \$270

2021-07-28 (LMC-US-00915)	046084295	2019 Chrysler Pacifica 2C4RC1BG6KR715212	Denise Littman	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-07-28 (LMC-US-00917)	046138055	2018 Infiniti QX60 5N1DL0MM3JC515317	Denise Littman	Download Full Report	USD \$270
2021-07-28 (LMC-US-00920)	046138131	2010 Cadillac CTS 1G6DF5EG2A0117831	Mike White	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-07-28 (LMC-US-00923)	046004521	2016 BMW X5 5UXKR0C59G0P30018	Ed Lemke	Download Full Report (Delta-V, EDR Speed, Accident)	USD \$270
2021-07-28 (LMC-US-00926)	045199143	2017 Volkswagen Jetta 3VW2B7AJ2HM375896	Theresa Jerome	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-07-28 (SA-US-00092)	AU-0000000-635571	2020 Chevrolet Malibu 1G1ZB5ST8LF137879	John Guthrie	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-07-29 (LMC-US-00929)	23935203	2016 Ford F-350 1FDRF3G6XGEA68932	Rob Pfeifer	Download Full Report (FF Speed, DTCs, Theft, Title Issue)	USD \$270
2021-07-29 (SA-US-00093)	AU-0000000-632966	2008 Dodge Ram 3500 3D7MX49A08G182991	PJ Thagard	Download Full Report (FF Speed, DTCs)	USD \$45
2021-07-29 (SD-00028)	21123703856	2015 Nissan Altima 1N4AL3AP1FC221970	Bryce Kieren	Download Full Report	USD \$270
2021-07-30 (LMC-US-00932)	045012593	2015 GMC Sierra 1GTV2UEC4FZ289396	Paul Miceli	Download Full Report	USD \$270
2021-07-30 (SA-US-00096)	AU-0000000-639979	2014 RAM 1500 1C6RR7NT0ES231850	Brad Miller	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-07-30 (LMC-US-00938)	046354102	2015 Toyota Corolla 2T1BURHE6FC366593	Mike White	Download Full Report (Delta-V, EDR Speed)	USD \$270

2021-07-30 (LMC-US-00934)	046074954	2007 Dodge Ram 1500 1D7HA18P87J502854	Chachi Woods	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-07-30 (LMC-US-00941)	046127941	2019 Toyota 4Runner JTEBU5JR8K5680058	Larry Wheeler	Download Full Report	USD \$270
2021-07-31 (LMC-US-00944)	045648884	2015 Infiniti Q50 JN1BV7AR0FM401309	Kevin Berger	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
TOTAL					USD \$17,910.00



REPORT SUMMARY

This section provides an overview of the predictive analytics used for the estimation of claim severity, exposure, and fraud risk for the most recent crash or event sequence.



Occupant Injuries

Seat Belt Use:

Number of Unbuckled Drivers: 0

Number of Unbuckled Front Passengers: 0

Probability of Injury given detected Collision Severity:

Total number of vehicles (having occupants) with more than 20% probability for initial whiplash: 56

Total number of vehicles (having occupants) with more than 20% probability for long-term whiplash: 33

Total number of vehicles (having occupants) with more than 20% probability for serious injury: 33

**The above statistical categories for injury severity are not mutually exclusive. One vehicle's occupants could be counted in multiple categories; for example, in both the initial symptoms and long-term injury risk.*



Driver Behavior

Number of Cases with Excessive Speeding:

91 - 100 mph: 0

100 mph +: 1

Number of Potential Distracted Drivers: 0

Number of Aggressive Acceleration Events: 1



FNOL Flags

Number of exceptions and discrepancies:

Potential Staged Collisions: 1

Reported Number of Occupants: N/A

Reported Vehicle Speed or Maneuver: N/A

Diagnostic validation (VIN, actual Airbag Deployment): N/A

Physical Damages (Areas or Date of Loss): N/A

Total Loss Assessment: N/A



Recommended Action

Moral Hazards:

Refer excessive speeding moral hazards to underwriting.

Number of cases where speed flagged above 90 mph: 1.

Contributory Negligence (Loss Reductions):

Review contributory negligence of unbuckled front passengers in 3rd Party Liability claims. Number of Cases: 0.



FLAGS / LOSS INDICATORS

This section lists flags for further investigation based on known anti-fraud indicators and/or inconsistencies with reported circumstances.

Drive Down: 1 (2.6% of records with crash data)

Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.

Vehicle: 2020 Chevrolet Malibu

Date: 2021-07-28

Total Flags: 1

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No Avoidance Maneuver: 1 (2.6% of records with crash data)

No driver input for either brake or steering maneuver within the 2 seconds prior to impact.

Vehicle: 2015 Toyota Corolla

Date: 2021-07-30

Total Flags: 4

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Possible Distracted Driver: 0 (0.0% of records with crash data)

In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.

No Pre-Impact Speed Reduction: 0 (0.0% of records with crash data)

Brake is only applied lightly with no meaningful reduction in speed.

Steered-To Sideswipe: 1 (2.6% of records with crash data)

Driver steers either left or right, causing an impact on the steered-to side.

Vehicle: 2017 Honda HR-V

Date: 2021-07-16

Total Flags: 1

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Swoop & Squat: 0 (0.0% of records with crash data)

Driver steers to make a lane change and quickly applies brakes.

Panic Stop: 1 (2.6% of records with crash data)

Rear-end collision where driver brakes just prior to impact.

Vehicle: 2010 Toyota Corolla**Date:** 2021-07-02**Total Flags:** 1[Download Full Report](#)**Possible Non-Recent Event: 18** (46.2% of records with crash data)

Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval. Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).

Vehicle: 2011 Mazda CX-9**Date:** 2021-07-03**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2015 Toyota Corolla**Date:** 2021-07-30**Total Flags:** 4[Download Full Report](#)**Vehicle:** 2018 Dodge Grand Caravan**Date:** 2021-07-10**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2016 Toyota Avalon**Date:** 2021-07-12**Total Flags:** 1[Download Full Report](#)**Vehicle:** 2014 Chrysler Town and Country**Date:** 2021-07-27**Total Flags:** 3[Download Full Report](#)**Vehicle:** 2018 Chevrolet Equinox**Date:** 2021-07-06**Total Flags:** 1[Download Full Report](#)**Vehicle:** 2016 Audi A4**Date:** 2021-07-09**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2017 Toyota RAV4**Date:** 2021-07-01**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2019 Chrysler Pacifica**Date:** 2021-07-28**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2018 Mazda CX-5**Date:** 2021-07-07**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2017 Volkswagen Jetta**Date:** 2021-07-28**Total Flags:** 3[Download Full Report](#)**Vehicle:** 2015 Infiniti Q50**Date:** 2021-07-31**Total Flags:** 1[Download Full Report](#)**Vehicle:** 2018 Hyundai Elantra**Date:** 2021-07-27**Total Flags:** 2[Download Full Report](#)

Vehicle: 2015 Dodge Challenger	Date: 2021-07-27	Total Flags: 3	Download Full Report
Vehicle: 2016 BMW X5	Date: 2021-07-28	Total Flags: 2	Download Full Report
Vehicle: 2015 Mercedes-Benz GLK-Class	Date: 2021-07-21	Total Flags: 2	Download Full Report
Vehicle: 2015 Toyota RAV4	Date: 2021-07-14	Total Flags: 2	Download Full Report
Vehicle: 2012 Chevrolet Impala	Date: 2021-07-01	Total Flags: 2	Download Full Report

Possible Intentional Damage: 0 (0.0% of records with crash data)

Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.

Pre-Damaged Vehicle: 11 (28.2% of records with crash data)

Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.

Vehicle: 2015 Mercedes-Benz CLA-Class	Date: 2021-07-26	Total Flags: 1	Download Full Report
Vehicle: 2011 Mazda CX-9	Date: 2021-07-03	Total Flags: 2	Download Full Report
Vehicle: 2015 Toyota Corolla	Date: 2021-07-30	Total Flags: 4	Download Full Report
Vehicle: 2010 Toyota Highlander	Date: 2021-07-23	Total Flags: 1	Download Full Report
Vehicle: 2017 Toyota RAV4	Date: 2021-07-01	Total Flags: 2	Download Full Report
Vehicle: 2017 Lexus IS	Date: 2021-07-02	Total Flags: 1	Download Full Report
Vehicle: 2018 Mazda CX-5	Date: 2021-07-07	Total Flags: 2	Download Full Report

Vehicle: 2017 Volkswagen Jetta

Date: 2021-07-28

Total Flags: 3

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Vehicle: 2015 Chevrolet Sonic

Date: 2021-07-05

Total Flags: 2

[Download Full Report](#)

Vehicle: 2017 Toyota Corolla

Date: 2021-07-08

Total Flags: 1

[Download Full Report](#)

Vehicle: 2012 Chevrolet Impala

Date: 2021-07-01

Total Flags: 2

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Unbuckled Driver: 0 (0.0% of records with crash data)

Driver not wearing seat belt at the time of crash data recording.

Unbuckled Passenger: 0 (0.0% of records with crash data)

Front passenger not wearing seat belt at the time of crash data recording.

Emissions Test Failure: 15 (38.5% of records with crash data)

Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).

Vehicle: 2016 Chevrolet Malibu

Date: 2021-07-09

Total Flags: 1

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Vehicle: 2017 Nissan Altima

Date: 2021-07-20

Total Flags: 1

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Vehicle: 2018 Ford F-250

Date: 2021-07-07

Total Flags: 2

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Vehicle: 2014 Chrysler Town and Country

Date: 2021-07-27

Total Flags: 3

[Download Full Report](#)

Vehicle: 2013 Dodge Avenger

Date: 2021-07-02

Total Flags: 1

[Download Full Report](#)

Vehicle: 2019 Chrysler Pacifica

Date: 2021-07-28

Total Flags: 2

[Download Full Report](#)

Vehicle: 2008 Ford Explorer

Date: 2021-07-28

Total Flags: 2

[Download Full Report](#)

Vehicle: 2017 Toyota Camry

Date: 2021-07-13

Total Flags: 1

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Vehicle: 2015 Chevrolet Sonic	Date: 2021-07-05	Total Flags: 2	Download Full Report
Vehicle: 2010 Ford F-150	Date: 2021-07-07	Total Flags: 1	Download Full Report
Vehicle: 2008 Saturn Vue	Date: 2021-07-02	Total Flags: 1	Download Full Report
Vehicle: 2015 Dodge Challenger	Date: 2021-07-27	Total Flags: 3	Download Full Report
Vehicle: 2004 Lexus ES	Date: 2021-07-19	Total Flags: 2	Download Full Report
Vehicle: 2016 Ford F-350	Date: 2021-07-29	Total Flags: 1	Download Full Report
Vehicle: 2002 Cadillac Deville	Date: 2021-07-19	Total Flags: 1	Download Full Report
Low Velocity Impact: 15 (38.5% of records with crash data) An impact in which the mean acceleration is below 3.0 g.			
Vehicle: 2010 Cadillac CTS	Date: 2021-07-28	Total Flags: 1	Download Full Report
Vehicle: 2018 Ford F-250	Date: 2021-07-07	Total Flags: 2	Download Full Report
Vehicle: 2015 Toyota Corolla	Date: 2021-07-30	Total Flags: 4	Download Full Report
Vehicle: 2018 Dodge Grand Caravan	Date: 2021-07-10	Total Flags: 2	Download Full Report
Vehicle: 2014 Chrysler Town and Country	Date: 2021-07-27	Total Flags: 3	Download Full Report
Vehicle: 2016 Audi A4	Date: 2021-07-09	Total Flags: 2	Download Full Report
Vehicle: 2008 Ford Explorer	Date: 2021-07-28	Total Flags: 2	Download Full Report
Vehicle: 2017 Volkswagen Jetta	Date: 2021-07-28	Total Flags: 3	Download Full Report

Vehicle: 2018 Hyundai Elantra**Date:** 2021-07-27**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2015 Dodge Challenger**Date:** 2021-07-27**Total Flags:** 3[Download Full Report](#)**Vehicle:** 2016 BMW X5**Date:** 2021-07-28**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2004 Lexus ES**Date:** 2021-07-19**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2015 Mercedes-Benz GLK-Class**Date:** 2021-07-21**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2015 Toyota RAV4**Date:** 2021-07-14**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2019 Ford Ranger**Date:** 2021-07-19**Total Flags:** 1[Download Full Report](#)**Odometer Rollback: 0** (0.0% of records with crash data)

Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.



STATISTICAL ANALYSIS

This section lists statistics based on an analysis of vehicle reports associated with the company.

General Statistics

General statistics related to reports completed during the reporting period.

Description	Statistics
Total number of vehicle scans during period	68
Total number of supported vehicles	66
Total number of supported vehicle reports with crash data	39
Total number of supported vehicle reports with no event data	27
Total number of vehicle reports with excess speed detected	N/A
Total number of vehicle reports with top speed information	41
Total number of loss indicators	48
Total number with DriveClean passed v.s. failed	56:16

Total number of DTCs found	24
Total number of unique DTCs	22
Total number of vehicles with more than 20% probability for initial whiplash	56
Total number of vehicles with more than 20% probability for long-term whiplash	33
Total number of vehicles with more than 20% probability for serious injury	33

Statistics on Maximum Travel Speed

This section lists statistics on maximum travel speed recorded in the most recent crash event(s). The maximum travel speed is extracted from pre-crash data of up to 5 seconds prior to impact. Therefore, the travel speed is not necessarily equivalent to the speed at impact.

Speed Range	Number of Cases
61 - 70 mph	2
71 - 80 mph	2
81 - 90 mph	2
91 - 100 mph	0
100 mph +	1

Vehicle: 2020 Chevrolet Malibu

Date: 2021-07-28

Speed: 173 km/h

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Statistics on Unbuckled Occupant Injury Risk

This section lists statistics on injury risk for unbuckled occupants.

Probability of Long-term WAD	Number of Cases
1 - 10%	0
11 - 20%	0
21 - 30%	0
31 - 40%	0
41 - 50%	0
51 - 60%	0
61 - 70%	0
71 - 80%	0
81 - 90%	0
91%+	0

Probability of Serious Injury	Number of Cases
1 - 10%	0
11 - 20%	0
21 - 30%	0

31 - 40%	0
41 - 50%	0
51%+	0

Statistics on Flags / Loss Indicators

Statistics categorized by flags / loss indicators.

Indicator	Description	Number of Cases
Drive Down	Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.	1
No Avoidance Maneuver	No driver input for either brake or steering maneuver within the 2 seconds prior to impact.	1
Possible Distracted Driver	In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.	0
No Pre-Impact Speed Reduction	Brake is only applied lightly with no meaningful reduction in speed.	0
Steered-To Sideswipe	Driver steers either left or right, causing an impact on the steered-to side.	1
Swoop & Squat	Driver steers to make a lane change and quickly applies brakes.	0
Panic Stop	Rear-end collision where driver brakes just prior to impact.	1
Possible Non-Recent Event	Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval. Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).	18
Possible Intentional Damage	Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.	0
Pre-Damaged Vehicle	Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.	11
Unbuckled Driver	Driver not wearing seat belt at the time of crash data recording.	0
Unbuckled Passenger	Front passenger not wearing seat belt at the time of crash data recording.	0
Emissions Test Failure	Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).	15
Low Velocity Impact	An impact in which the mean acceleration is below 3.0 g.	15
Odometer Rollback	Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.	0

Statistics by Model Year

Statistics categorized by vehicle model year.

Year	Cases	Total Flags	Distracted Drivers	Speeding Cases	Short-term WAD > 20%	Long-term WAD > 20%	Serious Injury > 20%
2021	3	0	0	0	3	3	3
2020	1	1	0	1	1	0	1
2019	6	2	0	0	4	4	4
2018	8	8	0	0	6	3	3
2017	8	8	0	1	8	2	2
2016	9	5	0	0	8	5	5
2015	11	13	0	2	9	4	3
2014	3	2	0	0	2	1	1
2013	1	0	0	0	1	1	1
2012	3	2	0	0	3	1	1
2011	3	2	0	0	3	3	3
2010	4	3	0	0	3	2	1
2009	1	0	0	0	1	1	1
2008	2	1	0	0	1	1	1
2007	2	0	0	0	2	1	2
2004	1	1	0	0	0	0	0
2002	1	0	0	0	1	1	1

Statistics by Vehicle Make

Statistics categorized by vehicle make.

Make	# Cases	Front Delta-V Range	Rear Delta-V Range	Side Delta-V Range
Nissan	0	N/A	N/A	N/A
Ford	0	1.9 to 6.1 mph	N/A	3.0 to 6.7 mph
Mercury	0	N/A	N/A	N/A
Saturn	0	N/A	N/A	N/A
Honda	0	2.5 to 2.5 mph	14.3 to 14.3 mph	1.2 to 5.0 mph
BMW	0	N/A	5.6 to 5.6 mph	0.6 to 0.6 mph
Audi	0	6.8 to 6.8 mph	N/A	N/A
Lexus	0	3.0 to 13.7 mph	N/A	0.9 to 1.8 mph
Hyundai	0	4.3 to 4.3 mph	N/A	N/A
Infiniti	0	9.3 to 9.3 mph	N/A	0.6 to 0.6 mph
Mazda	0	3.7 to 8.1 mph	N/A	N/A
Toyota	0	1.2 to 11.6 mph	7.3 to 11.7 mph	0.2 to 8.1 mph

Mercedes-Benz	0	11.2 to 11.2 mph	9.3 to 11.2 mph	0.6 to 3.1 mph
Dodge	0	4.3 to 27.1 mph	7.7 to 7.7 mph	0.5 to 0.5 mph
Volkswagen	0	5.6 to 6.8 mph	8.7 to 8.7 mph	5.6 to 9.9 mph
RAM	0	3.7 to 3.7 mph	N/A	7.5 to 7.5 mph
GMC	0	N/A	N/A	N/A
Cadillac	0	4.3 to 4.3 mph	N/A	8.1 to 8.1 mph
Chevrolet	0	4.3 to 29.2 mph	5.0 to 6.2 mph	1.2 to 4.3 mph
Chrysler	0	5.3 to 5.6 mph	N/A	0.5 to 1.9 mph
Jeep	0	22.4 to 22.4 mph	N/A	N/A

Event Data Disclaimer

It is important to note is that if a vehicle was spinning or rolling surrounding the collision, then the report's speed measurements would not accurately reflect the actual speed of the vehicle during/after it lost control; the speed measurement is typically based on the wheel speed sensor. Signs of this type of anomaly would be rapid changes in speed between the brief timing intervals. The reported speed may be an average of the four wheels; thus could also be skewed by spinning wheels. In combination with scene evidence, an expert could assess vehicle speed by analyzing the data via accident reconstruction and engineering analysis.

Users of the Collision Sciences service and reviewers of the reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Collision Sciences Inc. and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Collision Sciences Inc. expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the online services, evidence logistics, EDR data, EDR software or use thereof.

Injury Risk / Biomechanical Assessment Disclaimer

The estimated injury risks are calculated based on the recorded crash pulse, relative energy changes, known vehicle characteristics in standardized and real-world crashes, published databases, and recognized studies. The provided information can be used as a guide in settlement decisions but cannot be used to definitively prove the existence or non-presence of an injury. In cases with a very low risk of whiplash or other injury, claims can be identified for further investigation. Conversely, for cases with a high risk of whiplash or other injury, the claim can be expedited, since early treatment is often effective in reducing the long term prognosis.

Delta-V (Change in Velocity) has traditionally been used to correlate crash severity with risk of occupant injury (Augenstein et al., 2003; Bahouth et al., 2004; Sunnevång et al., 2009; Kononen et al., 2011). Injury tolerance and risk for various injury types based on real-world crashes with recorded crash data have been established (Gabauer and Gabler, 2006; Gabauer and Gabler, 2008; Kullgren and Krafft, 2008; Ydenius, 2010). Large-scale retrospective studies have also examined the relationship between minor severity crashes and the risk of occupant whiplash complaints, including studies in the U.S. (Tencer et al., 2001), Germany (Eis et al., 2005; Hell et al., 2002) and Sweden (Krafft et al., 2005). Injury risk studies consider the following risk factors: Crash configuration (front, side, rear, rollover), Delta-V = Change in velocity, Vehicle mass (size, weight), Vehicle stiffness, Vehicle geometry and engagement, Restraint system and its adjustment, Occupant seated position, Occupant profile (age, gender, previous injury), Number of WAD symptoms, and Psychological Distress. Structural damage and known whiplash thresholds overlap, indicating structural damage and repair cost are a poor predictor of minor injury threshold. Damage can also vary widely by vehicle model and impact configuration.

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**Collision Sciences MANAGEMENT REPORT**

EXPOSURE, RISK & DECISION SUPPORT

Company: American Family**Reporting Period:**

2021-04-01 to 2021-04-30

Generated: 2021-05-03 14:38:34 (UTC)**LIST OF PURCHASED REPORTS**

This section shows the list of vehicle reports purchased during the reporting period.

Report Info	Claim Number	Vehicle	Investigator	Links (Tags)	Fee
2021-04-01 (AF-06642)	01-003-208068 Delta-V: 7.28 mph	2016 Ford F-150 1FTFW1EG4GKF74121	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-04-01 (AF-06645)	01-003-185309	2018 Toyota Camry 4T1B11HK9JU055845	StreetDelivery	Download Full Report	USD \$300
2021-04-01 (AF-06648)	01-003-205833	2019 Acura MDX 5J8YD7H74KL000071	StreetDelivery	Download Full Report	USD \$300
2021-04-01 (AF-06651)	01-003-210871	2021 GMC Sierra 1GT49LEY1MF195391	StreetDelivery	Download Full Report	USD \$300
2021-04-01 (AF-06654)	01-003-193207	2015 Chevrolet Malibu 1G11C5SL4FF222264	StreetDelivery	Download Full Report	USD \$300
2021-04-01 (AF-06657)	01-003-043368	2013 Mazda 3 JM1BL1V73D1751685	Ethos Risk Services	Download Full Report (Delta-V, EDR Speed, FF Speed, DTCs, Junk/Salv./Ins., Title Issue)	USD \$300
2021-04-02 (AF-06660)	01-003-208134 Delta-V: 4.61 mph	2014 Ford Fiesta 3FADP4BJ4EM139570	Ethos Risk Services	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-04-02 (AF-06663)	01-003-175978	2003 Chevrolet Suburban 1GNFK16T73J180370	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$300
2021-04-02 (AF-06666)	01-003-231878	2010 Ford F-150 1FTFW1EV3AFD19930	StreetDelivery	Download Full Report (DTCs)	USD \$300

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2021-04-02 (AF-06669)	01-003-172299	2020 Chevrolet Equinox 2GNAXUEV1L6234498	Ethos Risk Services	<u>Download Full Report</u>	USD \$300
2021-04-02 (AF-06671)	01-003-191451	2009 Jeep Grand Cherokee 1J8HR58P69C544160	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-04-02 (AF-06674)	01-003-170240	2019 Hyundai Elantra 5NPD84LF7KH465592	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-04-03 (AF-06677)	01-003-212128 Delta-V: 3.04 mph	2015 Toyota Highlander 5TDJRKRFH9FS134141	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-04-03 (AF-06680)	01-003-212128	2017 Chevrolet Silverado 3GCPCREC9HG178624	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-04-05 (AF-06683)	01-003-243715 Delta-V: 3.95 mph	2017 Toyota Tacoma 5TFRX5GN8HX079809	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed, Junk/Salv./Ins., Title Issue)	USD \$300
2021-04-05 (AF-06686)	01-003-176040	2019 Honda CR-V 5J6RW6H38KL004123	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-04-05 (AF-06689)	01-003-146822 Delta-V: 6.21 mph	2021 Chevrolet Spark KL8CB6SA3MC702472	Ethos Risk Services	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-04-05 (AF-06692)	01-003-207016 Delta-V: 6.84 mph	2015 Kia Optima 5XXGM4A72FG439570	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed, FF Speed, DTCs, Junk/Salv./Ins., Title Issue)	USD \$300
2021-04-05 (AF-06694)	01-003-111758 Delta-V: 6.21 mph	2011 Jeep Grand Cherokee 1J4RR4GG3BC645860	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-04-05 (AF-06697)	01-003-164314	2005 Chevrolet Silverado 1GCEK19Z15Z151858	Ethos Risk Services	<u>Download Full Report</u> (FF Speed, DTCs)	USD \$300

2021-04-06 (AF-06703)	01-003-138928 Delta-V: 7.70 mph	2011 Ford Escape 1FMCU9EG7BKB59919	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs, Junk/Salv./Ins., Title Issue)	USD \$300
2021-04-06 (AF-06706)	01-003-062999 Delta-V: 3.10 mph	2017 Toyota RAV4 JTMRFREV7HD200425	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-06 (AF-06708)	01-003-223912 Delta-V: 8.08 mph	2015 Nissan Sentra 3N1AB7AP9FY237445	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-06 (AF-06710)	01-003-111151	2018 Subaru Crosstrek JF2GTAAC8JH238431	StreetDelivery	Download Full Report	USD \$300
2021-04-07 (AF-06712)	01-003-231878	2015 Dodge Grand Caravan 2C4RDGBG0FR750754	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$300
2021-04-07 (AF-06715)	01-003-238858	2016 Honda Pilot 5FNYP6H93GB127229	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-04-07 (AF-06718)	01-003-177280	2003 Chevrolet Silverado 1GCHK29123E308945	StreetDelivery	Download Full Report	USD \$300
2021-04-07 (AF-06721)	01-003-158667	2014 Chevrolet Cruze 1G1PA55HXE7191476	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-04-07 (AF-06723)	01-003-049603 Delta-V: 6.21 mph	2015 Chrysler 200 1C3CCCAB9FN619699	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-07 (AF-06726)	01-002-983088	2017 Honda Accord 1HGCR2F34HA207935	StreetDelivery	Download Full Report	USD \$300
2021-04-07 (AF-06729)	01-003-162590 Delta-V: 8.57 mph	2012 Toyota Camry 4T1BF1FKXCU162698	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-07 (AF-06734)	01-003-216936	2018 Honda Civic 2HGFC2F57JH558801	StreetDelivery	Download Full Report (DTCs)	USD \$300

2021-04-07 (AF-06737)	01-003-179306	2019 Cadillac Escalade ESV 1GYS3HKJXKR142644	StreetDelivery	Download Full Report	USD \$300
2021-04-08 (AF-06743)	01-003-244653	2001 Toyota Camry JT2BG22K410595587	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$50
2021-04-08 (AF-06746)	01-003-114312	2010 Chevrolet Malibu 1G1ZB5EB4AF262930	StreetDelivery	Download Full Report	USD \$300
2021-04-08 (AF-06749)	01-003-199809 Delta-V: 8.08 mph	2016 Honda Civic 2HGFC2F57GH546706	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-04-08 (AF-06752)	01-003-073822 Delta-V: 6.32 mph	2009 Toyota Prius JTDKB20U593463619	StreetDelivery	Download Full Report (Delta-V)	USD \$300
2021-04-08 (AF-06755)	01-003-154960	2008 Ford Edge 2FMDK39C78BA41256	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-04-08 (AF-06758)	01-003-180764	2005 GMC Yukon XL 1GKFK66UX5J229874	Ethos Risk Services	Download Full Report (FF Speed, DTCs, Theft)	USD \$300
2021-04-08 (AF-06765)	01-003-197349	2008 Pontiac G6 1G2ZH57N584178591	StreetDelivery	Download Full Report	USD \$300
2021-04-09 (AF-06768)	01-003-248498 Delta-V: 2.66 mph	2007 Toyota Camry JTNBE46K873117789	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-09 (AF-06770)	01-003-220453 Delta-V: 1.86 mph	2020 Nissan Altima 1N4BL4CV5LC273538	StreetDelivery	Download Full Report (Delta-V, EDR Speed, FF Speed, DTCs)	USD \$300
2021-04-09 (AF-06772)	01-003-193207	2020 Subaru Forester JF2SKARC2LH420078	StreetDelivery	Download Full Report	USD \$300
2021-04-09 (AF-06777)	01-003-252637	2000 Buick Century 2G4WS52J4Y1323888	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300

2021-04-09 (AF-06780)	01-003-131806 Delta-V: 5.59 mph	2014 Chevrolet Equinox 1GNFLFEKXEZ135270	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300
2021-04-11 (AF-06782)	01-003-146810	2020 Nissan Armada JN8AY2NE3L9780075	StreetDelivery	<u>Download Full</u> <u>Report</u>	USD \$300
2021-04-13 (AF-06788)	01-003-222057 Delta-V: 4.69 mph	2013 Toyota Tundra 5TFCY5F1XDX015475	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$300
2021-04-13 (AF-06791)	01-003-244653 Delta-V: 5.59 mph	2016 Chevrolet Trax 3GNCJNSB9GL257779	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$300
2021-04-13 (AF-06794)	01-003-228450	2018 Hyundai Tucson KM8J33A41JU685212	StreetDelivery	<u>Download Full</u> <u>Report</u>	USD \$300
2021-04-13 (AF-06797)	01-003-220165 Delta-V: 3.76 mph	2015 Lexus RX 2T2ZK1BA6FC176462	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$300
2021-04-13 (AF-06800)	01-003-150194 Delta-V: 9.99 mph	2015 Ford Taurus 1FAHP2H84FG157864	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300
2021-04-13 (AF-06811)	01-003-217134 Delta-V: 4.97 mph	2014 Nissan Murano JN8AZ1MW9EW521046	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, Junk/Salv./Ins., Title Issue)	USD \$300
2021-04-13 (AF-06807)	01-003-203218 Delta-V: 4.28 mph	2009 Toyota Sienna 5TDZK23C19S244642	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, FF Speed, DTCs)	USD \$300
2021-04-14 (AF-06814)	01-003-173040 Delta-V: 5.06 mph	2011 Toyota Venza 4T3BK3BB8BU049349	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, Junk/Salv./Ins., Title Issue, Accident)	USD \$300

2021-04-14 (AF-06817)	01-003-238858 Delta-V: 8.57 mph	2007 Toyota Prius JTDKB20U977683254	StreetDelivery	Download Full Report (Delta-V, DTCs, Junk/Salv./Ins., Title Issue)	USD \$300
2021-04-14 (AF-06820)	01-003-111758 Delta-V: 8.70 mph	2016 Chevrolet Trax 3GNCJRSB7GL125403	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-14 (AF-06823)	01-003-191220	2013 Toyota Tacoma 3TMJU4GN4DM153517	StreetDelivery	Download Full Report	USD \$300
2021-04-14 (AF-06825)	01-003-045539	2004 Pontiac Bonneville 1G2HX52K04U246043	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$300
2021-04-15 (AF-06827)	01-002-556349	2017 Jeep Grand Cherokee 1C4RJFJG3HC627854	StreetDelivery	Download Full Report	USD \$300
2021-04-15 (AF-06830)	01-003-086673	2017 Kia Optima 5XXGT4L30HG146427	Ethos Risk Services	Download Full Report	USD \$300
2021-04-15 (AF-06832)	01-003-208862	2017 Infiniti Q50 JN1CV7AR2HM680432	StreetDelivery	Download Full Report	USD \$300
2021-04-16 (AF-06834)	01-003-262580 Delta-V: 8.08 mph	2015 Chrysler 200 1C3CCCBG5FN573993	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-04-16 (AF-06836)	01-003-256458	2003 GMC Yukon XL 1GKFK66U43J218415	StreetDelivery	Download Full Report	USD \$300
2021-04-16 (AF-06839)	01-003-241227	2004 Ford F-150 1FTRX14W74NC67782	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$50
2021-04-16 (AF-06842)	01-003-067092 Delta-V: 4.97 mph	2019 Chevrolet Equinox 2GNAXKEV3K6112034	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-17 (AF-06845)	01-003-075501 Delta-V: 2.90 mph	2010 Toyota RAV4 JTMBK4DV9A5089152	HUB Enterprises	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-17 (AF-06848)	01-002-972998	2007 Chevrolet Trailblazer 1GNDS13S872163189	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$300

2021-04-19 (AF-06851)	01-003-143691	2010 Chevrolet Impala 2G1WB5EK3A1139503	StreetDelivery	Download Full Report	USD \$ 300
2021-04-19 (AF-06854)	01-003-203218	2019 Ford F-150 1FTEW1EP2KFB95356	StreetDelivery	Download Full Report	USD \$ 300
2021-04-20 (AF-06856)	01-002-966709 Delta-V: 8.08 mph	2014 Jeep Cherokee 1C4PJMB54EW277028	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$ 300
2021-04-20 (AF-06859)	01-003-234111	2014 Acura RDX 5J8TB4H31EL023727	StreetDelivery	Download Full Report	USD \$ 300
2021-04-21 (AF-06863)	01-003-307425 Delta-V: 5.59 mph	2019 Nissan Rogue 5N1AT2MV3KC802035	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$ 300
2021-04-21 (AF-06868)	01-003-267049 Delta-V: 11.18 mph	2010 Chrysler Town and Country 2A4RR5D14AR315544	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$ 300
2021-04-21 (AF-06871)	01-003-127616 Delta-V: 6.79 mph	2013 Toyota Tacoma 5TFLU4EN0DX063366	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$ 300
2021-04-21 (AF-06873)	01-003-270361	2014 Ford F-150 1FTFW1EF6EK82211	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$ 300
2021-04-21 (AF-06875)	01-003-219491	2011 Dodge Grand Caravan 2D4RN3DGXBR640309	StreetDelivery	Download Full Report	USD \$ 300
2021-04-21 (AF-06878)	01-003-219138	2020 Buick Envision LRBFXCSA4LD162951	StreetDelivery	Download Full Report	USD \$ 300
2021-04-21 (AF-06883)	01-003-283882 Delta-V: 6.84 mph	2014 Chevrolet Cruze 1G1PA5SH4E7137462	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$ 300
2021-04-22 (AF-06886)	01-003-187757	2018 Hyundai Tucson KM8J33A41JU639542	StreetDelivery	Download Full Report	USD \$ 300
2021-04-22 (AF-06888)	01-003-131714	2004 Toyota Corolla JTDBR32E642034205	StreetDelivery	Download Full Report	USD \$ 300

2021-04-22 (AF-06894)	01-003-193196 Delta-V: 7.46 mph	2019 Chevrolet Silverado 1GCRYDED9KZ218326	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-04-22 (AF-06896)	01-003-210229	2007 Dodge Ram 1D7HU18N17J620248	StreetDelivery	Download Full Report	USD \$300
2021-04-23 (AF-06899)	01-003-236155 Delta-V: 4.35 mph	2015 Hyundai Santa Fe 5XYZT3LB1FG279183	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-04-23 (AF-06901)	01-003-251706	2017 Nissan NV 1N6BF0KM9HN808835	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$300
2021-04-23 (AF-06903)	01-003-236155	2015 Chrysler 300 2C3CCAAG0FH810601	StreetDelivery	Download Full Report	USD \$300
2021-04-23 (AF-06905)	01-002-970465	2016 Nissan Versa 3N1CN7AP5GL821405	StreetDelivery	Download Full Report	USD \$300
2021-04-23 (AF-06908)	01-003-077720	2003 GMC Envoy 1GKET16S336174470	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$300
2021-04-23 (AF-06910)	01-003-208931 Delta-V: 8.08 mph	2016 Nissan Versa 3N1CN7AP2GL872764	HUB Enterprises	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-04-26 (AF-06912)	01-003-281983 Delta-V: 5.59 mph	2013 Nissan Rogue JN8AS5MV9DW147393	Ethos Risk Services	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-26 (AF-06914)	01-003-101664 Delta-V: 4.97 mph	2014 Subaru Forester JF2SJAEC4EH519917	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-26 (AF-06916)	01-003-170854	2013 Subaru Outback 4S4BRBGC7D3208421	StreetDelivery	Download Full Report	USD \$300
2021-04-26 (AF-06919)	01-003-271896 Delta-V: 5.73 mph	2007 Toyota FJ Cruiser JTEBU11F170023315	StreetDelivery	Download Full Report (Delta-V)	USD \$300
2021-04-27 (AF-06922)	01-003-294440	2014 Ford Explorer 1FM5K8B81EGC40170	StreetDelivery	Download Full Report (DTCs)	USD \$300

2021-04-27 (AF-06924)	01-003-213689	2018 Nissan Maxima 1N4AA6AP9JC397813	StreetDelivery	Download Full Report	USD \$300
2021-04-27 (AF-06926)	01-003-034637	2006 Ford Explorer 1FMEU73E96UB58280	Ethos Risk Services	Download Full Report (FF Speed, DTCs)	USD \$300
2021-04-27 (AF-06928)	01-003-241720	2014 Mercedes-Benz GLK-Class WDCGG5HB6EG290721	StreetDelivery	Download Full Report	USD \$300
2021-04-27 (AF-06931)	01-002-952868 Delta-V: 7.37 mph	2019 Toyota RAV4 2T3C1RFV0KW048100	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-27 (AF-06934)	01-003-310762 Delta-V: 16.39 mph	2008 Chevrolet Impala 2G1WT55K689144073	StreetDelivery	Download Full Report (Delta-V, EDR Speed, Junk/Salv./Ins., Title Issue)	USD \$300
2021-04-27 (AF-06940)	01-003-187762 Delta-V: 6.96 mph	2013 Ford Edge 2FMDK4KC4DBC55051	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-04-28 (AF-06943)	01-003-304988	2019 Nissan Pathfinder 5N1DR2MM9KC649616	StreetDelivery	Download Full Report	USD \$300
2021-04-28 (AF-06937)	01-003-220462 Delta-V: 6.84 mph	2021 Hyundai Tucson KM8J3CAL8MU319761	Ethos Risk Services	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-28 (AF-06954)	01-003-264214 Delta-V: 7.86 mph	2012 Toyota 4Runner JTEBU5JR2C5101342	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-28 (AF-06957)	01-003-170854	2015 Chevrolet Impala 1G11Z5SL3FU100585	StreetDelivery	Download Full Report (DTCs, Title Issue)	USD \$300
2021-04-28 (AF-06960)	01-003-234546	2002 Chevrolet TrailBlazer 1GNDT13S722222125	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-04-29 (AF-06970)	01-003-243462	2018 Chevrolet Traverse 1GNEVFKW1JJ162265	StreetDelivery	Download Full Report	USD \$300

2021-04-29 (AF-06973)	01-003-261176	2010 Chevrolet Colorado 1GCJTDDE8A8135707	HUB Enterprises	Download Full Report	USD \$300
2021-04-29 (AF-06978)	01-003-285426	2018 Chevrolet Malibu 1G1ZD5ST8JF209462	StreetDelivery	Download Full Report	USD \$300
2021-04-29 (AF-06980)	01-003-285426	2013 Dodge Avenger 1C3CDZAB6DN594127	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-04-29 (AF-06975)	01-002-685774 Delta-V: 16.16 mph	2010 RAM 1500 1D7RV1GT9AS108501	Ethos Risk Services	Download Full Report (Delta-V, EDR Speed, Junk/Salv./Ins., Title Issue)	USD \$300
2021-04-30 (AF-06983)	01-003-137803	2019 Ford Ranger 1FTER4FHXL30253	HUB Enterprises	Download Full Report	USD \$300
2021-04-30 (AF-06986)	01-003-266916 Delta-V: 4.10 mph	2012 Lexus RX JTJZB1BA7C2406005	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-04-30 (AF-06989)	01-003-331838	2017 Ford Expedition 1FMJU1HT0HEA56382	StreetDelivery	Download Full Report	USD \$300
2021-04-30 (AF-06992)	01-003-115506	2013 BMW 328i WBA3A5C54DF600373	StreetDelivery	Download Full Report (Accident)	USD \$300
2021-04-30 (AF-06995)	01-003-265729 Delta-V: 8.13 mph	2012 Chevrolet Malibu 1G1ZC5E09CF182568	Ethos Risk Services	Download Full Report (Delta-V, EDR Speed)	USD \$300
TOTAL					USD \$33,700.00



REPORT SUMMARY

This section provides an overview of the predictive analytics used for the estimation of claim severity, exposure, and fraud risk for the most recent crash or event sequence.



Occupant Injuries

Seat Belt Use:

Number of Unbuckled Drivers: 0

Number of Unbuckled Front Passengers: 0

Probability of Injury given detected Collision Severity:

Total number of vehicles (having occupants) with more than 20% probability for initial whiplash: 97

Total number of vehicles (having occupants) with more than 20% probability for long-term whiplash: 65

Total number of vehicles (having occupants) with more than 20% probability for serious injury: 65

**The above statistical categories for injury severity are not mutually exclusive. One vehicle's occupants could be counted in multiple categories; for example, in both the initial symptoms and long-term injury risk.*



Driver Behavior

Number of Cases with Excessive Speeding:

91 - 100 mph: 0

100 mph +: 0

Number of Potential Distracted Drivers: 2

Number of Aggressive Acceleration Events: 3



FNOL Flags

Number of exceptions and discrepancies:

Potential Staged Collisions: 3

Reported Number of Occupants: N/A

Reported Vehicle Speed or Maneuver: N/A

Diagnostic validation (VIN, actual Airbag Deployment): N/A

Physical Damages (Areas or Date of Loss): N/A

Total Loss Assessment: N/A



Recommended Action

Moral Hazards:

Refer excessive speeding moral hazards to underwriting.

Number of cases where speed flagged above 90 mph: 0.

Contributory Negligence (Loss Reductions):

Review contributory negligence of unbuckled front passengers in 3rd Party Liability claims. Number of Cases: 0.



FLAGS / LOSS INDICATORS

This section lists flags for further investigation based on known anti-fraud indicators and/or inconsistencies with reported circumstances.

Drive Down: 3 (6.0% of records with crash data)

Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.

Vehicle: 2014 Subaru Forester

Date: 2021-04-26

Total Flags: 4

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Vehicle: 2008 Chevrolet Impala

Date: 2021-04-27

Total Flags: 2

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Vehicle: 2014 Jeep Cherokee

Date: 2021-04-20

Total Flags: 3

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No Avoidance Maneuver: 0 (0.0% of records with crash data)

No driver input for either brake or steering maneuver within the 2 seconds prior to impact.

Possible Distracted Driver: 2 (4.0% of records with crash data)

In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.

Vehicle: 2014 Subaru Forester

Date: 2021-04-26

Total Flags: 4

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Report](#)

Vehicle: 2015 Hyundai Santa Fe

Date: 2021-04-23

Total Flags: 3

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Report](#)

No Pre-Impact Speed Reduction: 0 (0.0% of records with crash data)

Brake is only applied lightly with no meaningful reduction in speed.

Steered-To Sideswipe: 0 (0.0% of records with crash data)

Driver steers either left or right, causing an impact on the steered-to side.

Swoop & Squat: 0 (0.0% of records with crash data)

Driver steers to make a lane change and quickly applies brakes.

Panic Stop: 1 (2.0% of records with crash data)

Rear-end collision where driver brakes just prior to impact.

Vehicle: 2015 Nissan Sentra

Date: 2021-04-06

Total Flags: 2

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Possible Non-Recent Event: 30 (60.0% of records with crash data)

Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval.
Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).

Vehicle: 2019 Toyota RAV4

Date: 2021-04-27

Total Flags: 1

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Vehicle: 2013 Nissan Rogue

Date: 2021-04-26

Total Flags: 3

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Vehicle: 2019 Chevrolet Equinox	Date: 2021-04-16	Total Flags: 2	Download Full Report
Vehicle: 2014 Subaru Forester	Date: 2021-04-26	Total Flags: 4	Download Full Report
Vehicle: 2016 Ford F-150	Date: 2021-04-01	Total Flags: 2	Download Full Report
Vehicle: 2014 Chevrolet Cruze	Date: 2021-04-21	Total Flags: 2	Download Full Report
Vehicle: 2016 Chevrolet Trax	Date: 2021-04-14	Total Flags: 1	Download Full Report
Vehicle: 2015 Kia Optima	Date: 2021-04-05	Total Flags: 2	Download Full Report
Vehicle: 2008 Chevrolet Impala	Date: 2021-04-27	Total Flags: 2	Download Full Report
Vehicle: 2017 Toyota RAV4	Date: 2021-04-06	Total Flags: 2	Download Full Report
Vehicle: 2016 Nissan Versa	Date: 2021-04-23	Total Flags: 3	Download Full Report
Vehicle: 2013 Ford Edge	Date: 2021-04-27	Total Flags: 2	Download Full Report
Vehicle: 2012 Toyota Camry	Date: 2021-04-07	Total Flags: 2	Download Full Report
Vehicle: 2016 Chevrolet Trax	Date: 2021-04-13	Total Flags: 2	Download Full Report
Vehicle: 2013 Toyota Tacoma	Date: 2021-04-21	Total Flags: 3	Download Full Report
Vehicle: 2011 Ford Escape	Date: 2021-04-06	Total Flags: 2	Download Full Report
Vehicle: 2015 Toyota Highlander	Date: 2021-04-03	Total Flags: 2	Download Full Report
Vehicle: 2021 Hyundai Tucson	Date: 2021-04-28	Total Flags: 2	Download Full Report

Vehicle: 2015 Ford Taurus	Date: 2021-04-13	Total Flags: 2	Download Full Report
Vehicle: 2017 Toyota Tacoma	Date: 2021-04-05	Total Flags: 1	Download Full Report
Vehicle: 2013 Toyota Tundra	Date: 2021-04-13	Total Flags: 2	Download Full Report
Vehicle: 2015 Chrysler 200	Date: 2021-04-07	Total Flags: 2	Download Full Report
Vehicle: 2015 Hyundai Santa Fe	Date: 2021-04-23	Total Flags: 3	Download Full Report
Vehicle: 2014 Ford Fiesta	Date: 2021-04-02	Total Flags: 2	Download Full Report
Vehicle: 2016 Honda Civic	Date: 2021-04-08	Total Flags: 1	Download Full Report
Vehicle: 2021 Chevrolet Spark	Date: 2021-04-05	Total Flags: 2	Download Full Report
Vehicle: 2015 Lexus RX	Date: 2021-04-13	Total Flags: 1	Download Full Report
Vehicle: 2013 Mazda 3	Date: 2021-04-01	Total Flags: 3	Download Full Report
Vehicle: 2011 Jeep Grand Cherokee	Date: 2021-04-05	Total Flags: 1	Download Full Report
Vehicle: 2014 Jeep Cherokee	Date: 2021-04-20	Total Flags: 3	Download Full Report

Possible Intentional Damage: 0 (0.0% of records with crash data)

Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.

Pre-Damaged Vehicle: 12 (24.0% of records with crash data)

Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.

Vehicle: 2013 Nissan Rogue	Date: 2021-04-26	Total Flags: 3	Download Full Report
Vehicle: 2007 Toyota Camry	Date: 2021-04-09	Total Flags: 2	Download Full Report
Vehicle: 2014 Subaru Forester	Date: 2021-04-26	Total Flags: 4	Download Full Report
Vehicle: 2012 Toyota 4Runner	Date: 2021-04-28	Total Flags: 2	Download Full Report
Vehicle: 2010 Toyota RAV4	Date: 2021-04-17	Total Flags: 2	Download Full Report
Vehicle: 2014 Chevrolet Cruze	Date: 2021-04-21	Total Flags: 2	Download Full Report
Vehicle: 2014 Nissan Murano	Date: 2021-04-13	Total Flags: 2	Download Full Report
Vehicle: 2012 Lexus RX	Date: 2021-04-30	Total Flags: 2	Download Full Report
Vehicle: 2013 Toyota Tacoma	Date: 2021-04-21	Total Flags: 3	Download Full Report
Vehicle: 2015 Toyota Highlander	Date: 2021-04-03	Total Flags: 2	Download Full Report
Vehicle: 2011 Toyota Venza	Date: 2021-04-14	Total Flags: 2	Download Full Report
Vehicle: 2013 Mazda 3	Date: 2021-04-01	Total Flags: 3	Download Full Report

Unbuckled Driver: 0 (0.0% of records with crash data)

Driver not wearing seat belt at the time of crash data recording.

Unbuckled Passenger: 0 (0.0% of records with crash data)

Front passenger not wearing seat belt at the time of crash data recording.

Emissions Test Failure: 24 (48.0% of records with crash data)

Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).

Vehicle: 2005 GMC Yukon XL	Date: 2021-04-08	Total Flags: 1	Download Full Report
Vehicle: 2009 Toyota Sienna	Date: 2021-04-13	Total Flags: 2	Download Full Report
Vehicle: 2019 Chevrolet Silverado	Date: 2021-04-22	Total Flags: 1	Download Full Report
Vehicle: 2015 Chevrolet Impala	Date: 2021-04-28	Total Flags: 1	Download Full Report
Vehicle: 2003 Chevrolet Suburban	Date: 2021-04-02	Total Flags: 1	Download Full Report
Vehicle: 2020 Nissan Altima	Date: 2021-04-09	Total Flags: 2	Download Full Report
Vehicle: 2017 Nissan NV	Date: 2021-04-23	Total Flags: 1	Download Full Report
Vehicle: 2014 Chevrolet Cruze	Date: 2021-04-07	Total Flags: 1	Download Full Report
Vehicle: 2004 Ford F-150	Date: 2021-04-16	Total Flags: 1	Download Full Report
Vehicle: 2015 Chrysler 200	Date: 2021-04-16	Total Flags: 2	Download Full Report
Vehicle: 2007 Toyota Prius	Date: 2021-04-14	Total Flags: 2	Download Full Report
Vehicle: 2013 Dodge Avenger	Date: 2021-04-29	Total Flags: 1	Download Full Report
Vehicle: 2004 Pontiac Bonneville	Date: 2021-04-14	Total Flags: 1	Download Full Report
Vehicle: 2015 Kia Optima	Date: 2021-04-05	Total Flags: 2	Download Full Report
Vehicle: 2007 Chevrolet Trailblazer	Date: 2021-04-17	Total Flags: 1	Download Full Report
Vehicle: 2002 Chevrolet TrailBlazer	Date: 2021-04-28	Total Flags: 1	Download Full Report

Vehicle: 2015 Dodge Grand Caravan	Date: 2021-04-07	Total Flags: 1	Download Full Report
Vehicle: 2016 Nissan Versa	Date: 2021-04-23	Total Flags: 3	Download Full Report
Vehicle: 2003 GMC Envoy	Date: 2021-04-23	Total Flags: 1	Download Full Report
Vehicle: 2014 Chevrolet Equinox	Date: 2021-04-09	Total Flags: 2	Download Full Report
Vehicle: 2005 Chevrolet Silverado	Date: 2021-04-05	Total Flags: 1	Download Full Report
Vehicle: 2014 Ford F-150	Date: 2021-04-21	Total Flags: 1	Download Full Report
Vehicle: 2013 Mazda 3	Date: 2021-04-01	Total Flags: 3	Download Full Report
Vehicle: 2006 Ford Explorer	Date: 2021-04-27	Total Flags: 1	Download Full Report
Low Velocity Impact: 32 (64.0% of records with crash data) An impact in which the mean acceleration is below 3.0 g.			
Vehicle: 2013 Nissan Rogue	Date: 2021-04-26	Total Flags: 3	Download Full Report
Vehicle: 2007 Toyota Camry	Date: 2021-04-09	Total Flags: 2	Download Full Report
Vehicle: 2019 Chevrolet Equinox	Date: 2021-04-16	Total Flags: 2	Download Full Report
Vehicle: 2012 Toyota 4Runner	Date: 2021-04-28	Total Flags: 2	Download Full Report
Vehicle: 2010 Chrysler Town and Country	Date: 2021-04-21	Total Flags: 1	Download Full Report
Vehicle: 2016 Ford F-150	Date: 2021-04-01	Total Flags: 2	Download Full Report
Vehicle: 2009 Toyota Sienna	Date: 2021-04-13	Total Flags: 2	Download Full Report

Vehicle: 2020 Nissan Altima	Date: 2021-04-09	Total Flags: 2	Download Full Report
Vehicle: 2010 Toyota RAV4	Date: 2021-04-17	Total Flags: 2	Download Full Report
Vehicle: 2015 Chrysler 200	Date: 2021-04-16	Total Flags: 2	Download Full Report
Vehicle: 2007 Toyota Prius	Date: 2021-04-14	Total Flags: 2	Download Full Report
Vehicle: 2014 Nissan Murano	Date: 2021-04-13	Total Flags: 2	Download Full Report
Vehicle: 2017 Toyota RAV4	Date: 2021-04-06	Total Flags: 2	Download Full Report
Vehicle: 2016 Nissan Versa	Date: 2021-04-23	Total Flags: 3	Download Full Report
Vehicle: 2013 Ford Edge	Date: 2021-04-27	Total Flags: 2	Download Full Report
Vehicle: 2012 Toyota Camry	Date: 2021-04-07	Total Flags: 2	Download Full Report
Vehicle: 2016 Chevrolet Trax	Date: 2021-04-13	Total Flags: 2	Download Full Report
Vehicle: 2014 Chevrolet Equinox	Date: 2021-04-09	Total Flags: 2	Download Full Report
Vehicle: 2012 Lexus RX	Date: 2021-04-30	Total Flags: 2	Download Full Report
Vehicle: 2013 Toyota Tacoma	Date: 2021-04-21	Total Flags: 3	Download Full Report
Vehicle: 2011 Ford Escape	Date: 2021-04-06	Total Flags: 2	Download Full Report
Vehicle: 2011 Toyota Venza	Date: 2021-04-14	Total Flags: 2	Download Full Report
Vehicle: 2021 Hyundai Tucson	Date: 2021-04-28	Total Flags: 2	Download Full Report

Vehicle: 2015 Ford Taurus	Date: 2021-04-13	Total Flags: 2	Download Full Report
Vehicle: 2013 Toyota Tundra	Date: 2021-04-13	Total Flags: 2	Download Full Report
Vehicle: 2019 Nissan Rogue	Date: 2021-04-21	Total Flags: 1	Download Full Report
Vehicle: 2015 Chrysler 200	Date: 2021-04-07	Total Flags: 2	Download Full Report
Vehicle: 2015 Hyundai Santa Fe	Date: 2021-04-23	Total Flags: 3	Download Full Report
Vehicle: 2014 Ford Fiesta	Date: 2021-04-02	Total Flags: 2	Download Full Report
Vehicle: 2021 Chevrolet Spark	Date: 2021-04-05	Total Flags: 2	Download Full Report
Vehicle: 2015 Nissan Sentra	Date: 2021-04-06	Total Flags: 2	Download Full Report
Vehicle: 2014 Jeep Cherokee	Date: 2021-04-20	Total Flags: 3	Download Full Report

Odometer Rollback: 0 (0.0% of records with crash data)

Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.



STATISTICAL ANALYSIS

This section lists statistics based on an analysis of vehicle reports associated with the company.

General Statistics

General statistics related to reports completed during the reporting period.

Description	Statistics
Total number of vehicle scans during period	114
Total number of supported vehicles	112
Total number of supported vehicle reports with crash data	50

Total number of supported vehicle reports with no event data	62
Total number of vehicle reports with excess speed detected	N/A
Total number of vehicle reports with top speed information	59
Total number of loss indicators	80
Total number with DriveClean passed v.s. failed	92:25
Total number of DTCs found	66
Total number of unique DTCs	53
Total number of vehicles with more than 20% probability for initial whiplash	97
Total number of vehicles with more than 20% probability for long-term whiplash	65
Total number of vehicles with more than 20% probability for serious injury	65

Statistics on Maximum Travel Speed

This section lists statistics on maximum travel speed recorded in the most recent crash event(s). The maximum travel speed is extracted from pre-crash data of up to 5 seconds prior to impact. Therefore, the travel speed is not necessarily equivalent to the speed at impact.

Speed Range	Number of Cases
61 - 70 mph	2
71 - 80 mph	0
81 - 90 mph	0
91 - 100 mph	0
100 mph +	0

Statistics on Unbuckled Occupant Injury Risk

This section lists statistics on injury risk for unbuckled occupants.

Probability of Long-term WAD	Number of Cases
1 - 10%	0
11 - 20%	0
21 - 30%	0
31 - 40%	0
41 - 50%	0
51 - 60%	0
61 - 70%	0
71 - 80%	0
81 - 90%	0
91%+	0

Probability of Serious Injury	Number of Cases
-------------------------------	-----------------

1 - 10%	0
11 - 20%	0
21 - 30%	0
31 - 40%	0
41 - 50%	0
51%+	0

Statistics on Flags / Loss Indicators

Statistics categorized by flags / loss indicators.

Indicator	Description	Number of Cases
Drive Down	Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.	3
No Avoidance Maneuver	No driver input for either brake or steering maneuver within the 2 seconds prior to impact.	0
Possible Distracted Driver	In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.	2
No Pre-Impact Speed Reduction	Brake is only applied lightly with no meaningful reduction in speed.	0
Steered-To Sideswipe	Driver steers either left or right, causing an impact on the steered-to side.	0
Swoop & Squat	Driver steers to make a lane change and quickly applies brakes.	0
Panic Stop	Rear-end collision where driver brakes just prior to impact.	1
Possible Non-Recent Event	Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval. Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).	30
Possible Intentional Damage	Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.	0
Pre-Damaged Vehicle	Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.	12
Unbuckled Driver	Driver not wearing seat belt at the time of crash data recording.	0
Unbuckled Passenger	Front passenger not wearing seat belt at the time of crash data recording.	0
Emissions Test Failure	Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).	24
Low Velocity Impact	An impact in which the mean acceleration is below 3.0 g.	32
Odometer Rollback	Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.	0

Statistics by Model Year

Statistics categorized by vehicle model year.

Year	Cases	Total Flags	Distracted Drivers	Speeding Cases	Short-term WAD > 20%	Long-term WAD > 20%	Serious Injury > 20%
2021	3	4	0	0	3	1	1
2020	5	1	0	0	4	4	4
2019	11	4	0	0	9	7	7
2018	8	0	0	0	8	8	8
2017	9	3	0	0	8	7	7
2016	7	8	0	0	7	2	2
2015	12	14	1	0	10	4	4
2014	11	14	1	0	8	5	5
2013	9	12	0	0	7	5	5
2012	4	6	0	0	3	0	0
2011	4	5	0	0	3	1	1
2010	7	3	0	0	6	4	4
2009	3	1	0	0	2	1	1
2008	3	2	0	0	3	2	2
2007	5	3	0	0	4	2	2
2006	1	0	0	0	1	1	1
2005	2	0	0	0	2	2	2
2004	3	0	0	0	3	3	3
2003	4	0	0	0	4	4	4
2002	1	0	0	0	1	1	1
2000	1	0	0	0	1	1	1

Statistics by Vehicle Make

Statistics categorized by vehicle make.

Make	# Cases	Front Delta-V Range	Rear Delta-V Range	Side Delta-V Range
Buick	0	N/A	N/A	N/A
Subaru	0	5.0 to 9.3 mph	N/A	N/A
Mercedes-Benz	0	N/A	N/A	N/A
GMC	0	N/A	N/A	N/A
Lexus	0	4.1 to 4.1 mph	N/A	N/A

Dodge	0	N/A	N/A	N/A
Nissan	0	1.9 to 14.3 mph	8.1 to 8.1 mph	0.6 to 3.7 mph
Ford	0	0.6 to 10.0 mph	7.0 to 7.0 mph	0.1 to 0.7 mph
Chrysler	0	6.2 to 11.2 mph	N/A	1.2 to 1.2 mph
Hyundai	0	4.3 to 6.8 mph	N/A	1.2 to 1.2 mph
Acura	0	N/A	N/A	N/A
Pontiac	0	N/A	N/A	N/A
Kia	0	6.8 to 6.8 mph	N/A	0.6 to 0.6 mph
Honda	0	5.6 to 5.6 mph	N/A	8.1 to 8.1 mph
Infiniti	0	N/A	N/A	N/A
Chevrolet	0	4.3 to 16.4 mph	5.6 to 8.7 mph	0.6 to 8.6 mph
Toyota	0	1.8 to 9.3 mph	0.5 to 7.4 mph	0.4 to 7.2 mph
RAM	0	16.2 to 16.2 mph	N/A	3.7 to 3.7 mph
BMW	0	N/A	N/A	N/A
Mazda	0	3.1 to 3.1 mph	N/A	13.0 to 13.0 mph
Jeep	0	6.2 to 8.1 mph	N/A	0.6 to 0.6 mph
Cadillac	0	N/A	N/A	N/A

Event Data Disclaimer

It is important to note is that if a vehicle was spinning or rolling surrounding the collision, then the report's speed measurements would not accurately reflect the actual speed of the vehicle during/after it lost control; the speed measurement is typically based on the wheel speed sensor. Signs of this type of anomaly would be rapid changes in speed between the brief timing intervals. The reported speed may be an average of the four wheels; thus could also be skewed by spinning wheels. In combination with scene evidence, an expert could assess vehicle speed by analyzing the data via accident reconstruction and engineering analysis.

Users of the Collision Sciences service and reviewers of the reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Collision Sciences Inc. and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Collision Sciences Inc. expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the online services, evidence logistics, EDR data, EDR software or use thereof.

Injury Risk / Biomechanical Assessment Disclaimer

The estimated injury risks are calculated based on the recorded crash pulse, relative energy changes, known vehicle characteristics in standardized and real-world crashes, published databases, and recognized studies. The provided information can be used as a guide in settlement decisions but cannot be used to definitively prove the existence or non-presence of an injury. In cases with a very low risk of whiplash or other injury, claims can be identified for further investigation. Conversely, for cases with a high risk of whiplash or other injury, the claim can be expedited, since early treatment is often effective in reducing the long term prognosis.

Delta-V (Change in Velocity) has traditionally been used to correlate crash severity with risk of occupant injury (Augenstein et al., 2003; Bahouth et al., 2004; Sunneväng et al., 2009; Kononen et al., 2011). Injury tolerance and risk for various injury types based on real-world crashes with recorded crash data have been established (Gabauer and Gabler, 2006; Gabauer and Gabler, 2008; Kullgren and Krafft, 2008; Ydenius, 2010). Large-scale retrospective studies have also examined the relationship between minor severity crashes and the risk of occupant whiplash complaints, including studies in the U.S. (Tencer et al., 2001), Germany (Eis et al., 2005; Hell et al., 2002) and Sweden (Krafft et al., 2005). Injury risk studies consider the following risk factors: Crash configuration (front, side, rear, rollover), Delta-V = Change in velocity, Vehicle mass (size, weight), Vehicle stiffness, Vehicle geometry and engagement, Restraint system and its adjustment, Occupant seated position, Occupant profile (age, gender, previous injury), Number of WAD symptoms, and Psychological Distress. Structural damage and known whiplash thresholds overlap, indicating structural damage and repair cost are a poor predictor of minor injury threshold. Damage can also vary widely by vehicle model and impact configuration.

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Accident Detector

Mazda Cable 831 Module Scanned

This vehicle uses Mazda cable 831. Check data decoding scheme with CDR replay. The report has been placed under review.

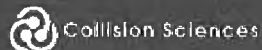
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Vehicle
2019 Mazda 6

VIN
JM1GL1UM9K1502821

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Collision Sciences **MANAGEMENT REPORT**

EXPOSURE, RISK & DECISION SUPPORT

Company: American Family

Reporting Period:

2021-02-01 to 2021-02-28

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LIST OF PURCHASED REPORTS

This section shows the list of vehicle reports purchased during the reporting period.

2021-02-01 (AF-05753)	01-003-010292	2018 Nissan Altima 1N4AL3AP9JC283738	StreetDelivery	Download Full Report	USD \$300
2021-02-01 (AF-05760)	01-002-989576	2016 Honda CR-V 2HKRM4H57GH666840	StreetDelivery	Download Full Report	USD \$300
2021-02-01 (AF-05763)	01-003-013864	2018 Ford F-150 1FTEW1E57JKD65022	Ethos Risk Services	Download Full Report	USD \$300
2021-02-01 (AF-05766)	01-003-002365	2015 Ford Escape 1FMCU9G90FUC43282	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-02-01 (AF-05772)	01-002-895375	2016 Ford Explorer 1FM5K8F80GGA19804	StreetDelivery	Download Full Report	USD \$300
2021-02-01 (AF-05777)	01-003-019453	2018 Ford F-250 1FT7W2BT5JEC90949	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-02-01 (AF-05778)	01-003-041873 Delta-V: 5.63 mph	2018 Toyota 4Runner JTEBU5JR7J5592729	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-02-02 (AF-05781)	01-003-051577	2017 Ford Focus 1FADP3H25HL264433	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$300
2021-02-02 (AF-05784)	01-002-943644	2016 Ford F-250 1FT7W2B65GEC40460	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-02-02 (AF-05787)	01-002-949552 Delta-V: 5.59 mph	2018 Chevrolet Silverado 3GCUKREC0JG469928	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-02-02 (AF-05790)	01-001-302957	2013 Chevrolet Equinox 2GNALDEK5D6425134	StreetDelivery	Download Full Report	USD \$300

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2021-02-02 (AF-05793)	01-002-983852 Delta-V: 5.14 mph	2004 Toyota Camry 4T1BE30K54U287441	StreetDelivery	<u>Download Full</u> Report (Delta-V, DTCs)	USD \$300
2021-02-02 (AF-05795)	01-002-983852	2008 Dodge Grand Caravan 1D8HN44H38B110442	StreetDelivery	<u>Download Full</u> Report (DTCs)	USD \$300
2021-02-02 (AF-05798)	01-002-995425 Delta-V: 4.97 mph	2010 Chevrolet Equinox 2CNFLGEY7A6200919	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-02 (AF-05800)	01-003-029545	2014 Dodge Charger 2C3CDXBG2EH173904	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-02 (AF-05803)	01-003-014708 Delta-V: 3.04 mph	2017 Toyota Corolla 2T1BURHE7HC884022	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-02 (AF-05806)	01-002-972139	2015 Volkswagen Beetle 3VWF17AT0FM650166	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-03 (AF-05809)	01-002-981315 Delta-V: 0.38 mph	2007 Ford Fusion 3FAHP07Z77R107095	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed, FF Speed, DTCs)	USD \$300
2021-02-03 (AF-05815)	01-002-941900 Delta-V: 5.97 mph	2008 Toyota Avalon 4T1BK36B88U272874	StreetDelivery	<u>Download Full</u> Report (Delta-V)	USD \$300
2021-02-03 (AF-05817)	01-002-894870 Delta-V: 9.32 mph	2015 Nissan Altima 1N4AL3AP1FC259330	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-03 (AF-05819)	01-002-965585	2012 Chrysler 200 1C3CCBCGXCN184836	StreetDelivery	<u>Download Full</u> Report (FF Speed, DTCs)	USD \$300
2021-02-03 (AF-05821)	01-002-972287	2017 Nissan Maxima 1N4AA6APXHC406187	Ethos Risk Services	<u>Download Full</u> Report	USD \$300
2021-02-03 (AF-05823)	01-003-045710	2018 Chrysler Pacifica 2C4RC1BG6JR204601	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-03 (AF-05812)	01-002-974346 Delta-V: 5.18 mph	2004 Toyota 4Runner JTEBT17R340040388	CoventBridge	<u>Download Full</u> Report (Delta-V)	USD \$300

2021-02-03 (AF-05829)	01-003-051577	2006 Ford Escape 1FMCU93116KA46438	StreetDelivery	<u>Download Full</u> Report (DTCs)	USD \$50
2021-02-03 (AF-05826)	01-003-045740 Delta-V: 5.59 mph	2012 Chevrolet Sonic 1G1JA5SH9C4167335	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-03 (AF-05832)	01-002-995028 Delta-V: 6.21 mph	2017 Chevrolet Cruze 3G1BF6SM8HS584140	StreetDelivery	<u>Download Full</u> Report (Delta-V)	USD \$300
2021-02-03 (AF-05834)	01-002-935782	2018 Dodge Journey 3C4PDDBG2JT329565	Ethos Risk Services	Download Full Report	USD \$300
2021-02-03 (AF-05836)	01-002-952232 Delta-V: 8.70 mph	2015 Nissan Sentra 3N1AB7AP5FY344010	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-02-04 (AF-05844)	01-002-921563	2018 Toyota Camry 4T1B11HK4JU597015	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-04 (AF-05847)	01-003-016264 Delta-V: 6.84 mph	2016 Ford Escape 1FMCU9G93GUA31168	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-04 (AF-05850)	01-003-005273 Delta-V: 6.84 mph	2016 Buick Encore KL4CJASB1GB560553	Ethos Risk Services	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-04 (AF-05853)	01-003-060494	2013 Honda Accord 1HGCR2F74DA051179	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-02-04 (AF-05856)	01-003-065516	2017 Acura TLX 19UUB1F33HA010919	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-04 (AF-05858)	01-003-045534	2008 Jeep Grand Cherokee 1J8HR58288C184165	StreetDelivery	Download Full Report	USD \$300
2021-02-04 (AF-05860)	01-002-921563	2014 Subaru Outback 4S4BRCAC5E1246905	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-05 (AF-05863)	01-003-019754 Delta-V: 7.03 mph	2017 Lexus NX JTJYARBZ7H2070219	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300

2021-02-05 (AF-05866)	01-003-044185	2008 Toyota Tacoma 5TEUU42N38Z563528	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-02-05 (AF-05868)	01-002-925706	2011 Chevrolet Impala 2G1WG5EK6B1203634	StreetDelivery	<u>Download Full Report</u> (Theft)	USD \$300
2021-02-08 (AF-05871)	01-002-956742 Delta-V: 6.21 mph	2015 Chevrolet Malibu 1G11C5SLXFF274238	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-08 (AF-05873)	01-003-054170 Delta-V: 12.43 mph	2011 Chrysler 200 1C3BC1FB5BN594075	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-08 (AF-05876)	01-002-963004	2016 Mazda CX-5 JM3KE2DY0G0691442	HUB Enterprises	<u>Download Full Report</u> (DTCs, Junk/Salv./Ins., Title Issue)	USD \$300
2021-02-08 (AF-05880)	01-003-062664	2009 Dodge Grand Caravan 2D8HN54XX9R646465	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-02-08 (AF-05885)	01-003-009006 Delta-V: 4.97 mph	2015 Subaru XV CrossTrek JF2GPAFC8FH217762	HUB Enterprises	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-08 (AF-05878)	01-002-928727 Delta-V: 9.94 mph	2017 Jeep Grand Cherokee 1C4RJFAG7HC767955	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed, Title Issue)	USD \$300
2021-02-08 (AF-05891)	01-003-028689	2013 GMC Terrain 2GKFLVEK3D6412083	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-02-08 (AF-05883)	01-003-002719 Delta-V: 2.25 mph	2005 Toyota Highlander JTEEP21A350084810	CoventBridge	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-08 (AF-05894)	01-002-950813 Delta-V: 3.56 mph	2019 Toyota 4Runner JTEBU5JR4K5693003	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300

2021-02-08 (AF-05896)	01-002-834556 Delta-V: 8.08 mph	2019 Jeep Cherokee 1C4PJLLB5KD461359	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-08 (AF-05898)	01-003-058463	2018 Nissan Sentra 3N1AB7AP5JY296937	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-02-09 (AF-05590)	01-003-000496 Delta-V: 4.66 mph	2016 Toyota Camry 4T1BF1FK9GU508536	CoventBridge	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-09 (AF-05638)	01-002-862966 Delta-V: 7.46 mph	2014 Chevrolet Malibu 1G11C5SL2EF205400	CoventBridge	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-09 (AF-05657)	01-002-944811	2017 Dodge Challenger 2C3CDZAG2HH651904	CoventBridge	<u>Download Full Report</u> (DTCs)	USD \$300
2021-02-09 (AF-05901)	01-002-849803 Delta-V: 18.02 mph	2019 Kia Forte 3KPF34AD6KE008009	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-09 (AF-05904)	01-003-014277 Delta-V: 2.83 mph	2009 Scion xB JTLKE50E991096015	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-09 (AF-05907)	01-003-019966	2014 Ford F-150 1FTEX1EM8EKD10833	StreetDelivery	<u>Download Full Report</u> (DTCs)	USD \$300
2021-02-10 (AF-05909)	01-002-990535	2001 Pontiac Grand AM 1G2NW12E11M571840	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-10 (AF-05911)	01-003-053502	2017 Chrysler Pacifica 2C4RC1BG6HR810989	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-02-10 (AF-05914)	01-003-053906	2017 Hyundai Santa Fe Sport 5NMZU3LB4HH041382	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-02-10 (AF-05917)	01-003-005637	2018 Honda Civic 2HGFC2F54JH567990	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-02-10 (AF-05919)	01-002-988124	2019 Infiniti QX50 3PCAJ5M36KF137869	StreetDelivery	<u>Download Full Report</u>	USD \$300

2021-02-10 (AF-05922)	01-002-904447 Delta-V: 10.26 mph	2014 Toyota Corolla 5YFBPRHE2EP103636	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-10 (AF-05925)	01-003-068848	2006 Lexus GX JTJBT20X360113598	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-10 (AF-05928)	01-002-880030 Delta-V: 8.15 mph	2007 Toyota Camry 4T1BE46K87U098591	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-11 (AF-05935)	01-002-983206	2007 Toyota Camry 4T1BE46K97U031997	StreetDelivery	<u>Download Full</u> Report (DTCs)	USD \$300
2021-02-11 (AF-05938)	01-003-066379	2017 Dodge Journey 3C4PDDAG7HT583896	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-11 (AF-05944)	01-003-047633	2017 Chevrolet Cruze 1G1BC5SM3H7219463	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-11 (AF-05941)	01-003-056163 Delta-V: 6.84 mph	2015 Chevrolet Malibu 1G11D5SLXFF201822	Ethos Risk Services	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-11 (AF-05947)	01-003-066379 Delta-V: 1.76 mph	2004 Buick Regal 2G4WB52K041208398	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-11 (AF-05949)	01-003-039882 Delta-V: 8.08 mph	2018 Nissan Frontier 1N6AD0ER5JN727880	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-11 (AF-05952)	01-003-013848 Delta-V: 1.39 mph	2005 Toyota Sequoia 5TDBT44A95S239836	StreetDelivery	<u>Download Full</u> Report (Delta-V, Theft, Accident)	USD \$300
2021-02-11 (AF-05955)	01-003-068848 Delta-V: 4.46 mph	2010 Lexus IS JTHBF5C2XA5122935	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-11 (AF-05958)	01-002-938683	2017 Chevrolet Spark KL8CA6SA4HC801830	StreetDelivery	<u>Download Full</u> Report	USD \$300

2021-02-11 (AF-05961)	01-002-931610 Delta-V: 0.14 mph	2016 Toyota RAV4 2T3BFREV6GW530513	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$ 300
2021-02-12 (AF-05967)	01-003-043543 Delta-V: 9.94 mph	2010 Cadillac SRX 3GYFNFY9A5543252	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$ 300
2021-02-12 (AF-05969)	01-002-962642	2018 Dodge Journey 3C4PDCEG9JT352251	StreetDelivery	<u>Download Full Report</u>	USD \$ 300
2021-02-12 (AF-05972)	01-003-060494	2013 Chevrolet Impala 2G1WF5E3XD1223870	StreetDelivery	<u>Download Full Report</u> (Accident)	USD \$ 300
2021-02-13 (AF-05974)	01-003-043492 Delta-V: 5.59 mph	2014 Jeep Wrangler 1C4BJWDG7EL126779	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$ 300
2021-02-13 (AF-05979)	01-003-068374	2015 Honda Pilot 5FNYF3H30FB012256	HUB Enterprises	<u>Download Full Report</u>	USD \$ 300
2021-02-13 (AF-05976)	01-002-916423	2008 Dodge Grand Caravan 1D8HN54P68B155145	HUB Enterprises	<u>Download Full Report</u> (FF Speed, DTCs)	USD \$ 300
2021-02-15 (AF-05985)	01-002-927471	2012 Chevrolet Impala 2G1WG5E30C1266657	StreetDelivery	<u>Download Full Report</u> (DTCs)	USD \$ 300
2021-02-15 (AF-05988)	01-002-983594 Delta-V: 9.94 mph	2018 Ford Escape 1FMCU9HD7JUB87787	Ethos Risk Services	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$ 300
2021-02-15 (AF-05991)	01-002-873241	2015 Chevrolet Malibu 1G11C5SL9FF254806	StreetDelivery	<u>Download Full Report</u>	USD \$ 300
2021-02-15 (AF-05994)	01-002-920584 Delta-V: 4.92 mph	2002 Toyota Camry JTDBF30K620004468	Ethos Risk Services	<u>Download Full Report</u> (Delta-V, DTCs)	USD \$ 300
2021-02-16 (AF-05995)	01-002-967781 Delta-V: 6.21 mph	2016 Dodge Dart 1C3CDFFA8GD815980	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$ 300
2021-02-16 (AF-05998)	01-003-008809	2010 Mazda 6 1YVHZ8BH3A5M46443	StreetDelivery	<u>Download Full Report</u> (DTCs)	USD \$ 300

2021-02-16 (AF-06001)	01-003-057748	2011 Ford F-150 1FTFW1CT9BKD81519	StreetDelivery	<u>Download Full</u> <u>Report</u> (DTCs)	USD \$300
2021-02-16 (AF-06006)	01-003-038032 Delta-V: 5.59 mph	2015 Volkswagen Passat 1VWAT7A33FC056242	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-16 (AF-06008)	01-002-973780 Delta-V: 8.08 mph	2015 Dodge Dart 1C3CDFBB2FD227408	HUB Enterprises	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-16 (AF-06011)	01-002-871733 Delta-V: 6.84 mph	2017 Chevrolet Trax KL7CJLSB2HB222188	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-16 (AF-06014)	01-003-071922 Delta-V: 8.08 mph	2013 Hyundai Elantra 5NPDH4AEXDH385264	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-16 (AF-06016)	01-002-885843	2010 Dodge Charger 2B3CA3CV5AH287434	CoventBridge	<u>Download Full</u> <u>Report</u>	USD \$300
2021-02-16 (AF-06018)	01-002-987304 Delta-V: 6.21 mph	2013 Nissan Sentra 3N1AB7AP6DL725794	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-17 (AF-06026)	01-002-967781 Delta-V: 4.61 mph	2007 Toyota RAV4 JTMZD31V876042446	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, Theft)	USD \$300
2021-02-17 (AF-06029)	01-003-088908 Delta-V: 5.70 mph	2008 Buick LaCrosse 2G4WD582181136957	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-17 (AF-06032)	01-003-085087 Delta-V: 2.49 mph	2013 Kia Sorento 5XYKTD A20DG352230	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-17 (AF-06035)	01-003-063388 Delta-V: 4.97 mph	2013 Hyundai Tucson KM8JUCAC7DU606666	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300

2021-02-17 (AF-06040)	01-003-045304	2008 Chevrolet Suburban 1GNFK163X8R218862	StreetDelivery	<u>Download Full</u> Report (FF Speed, DTCs)	USD \$300
2021-02-17 (AF-06042)	01-002-809595 Delta-V: 0.62 mph	2019 Nissan Versa 3N1CN7AP8KL826493	StreetDelivery	<u>Download Full</u> Report (Delta-V)	USD \$300
2021-02-17 (AF-06037)	01-002-990057 Delta-V: 1.86 mph	2017 Nissan Maxima 1N4AA6AP0HC418350	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-17 (AF-06045)	01-002-995425 Delta-V: 6.21 mph	2014 Mazda CX-5 JM3KE4DY0E0394163	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-17 (AF-06047)	01-003-022070	2012 RAM 2500 3C6UD5DL1CG154618	StreetDelivery	<u>Download Full</u> Report (FF Speed, DTCs)	USD \$300
2021-02-18 (AF-06050)	01-003-041623 Delta-V: 6.21 mph	2014 Chevrolet Traverse 1GNKRJKD7EJ261574	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-18 (AF-06053)	01-002-996425	2015 Hyundai Sonata 5NPE24AF2FH160435	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-18 (AF-06056)	01-003-035564	2015 GMC Sierra 1GTN1TEH9FZ322384	Ethos Risk Services	<u>Download Full</u> Report	USD \$300
2021-02-18 (AF-06062)	01-003-040538 Delta-V: 6.84 mph	2016 Ford Escape 1FMCU9G98GUC59621	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-18 (AF-06059)	01-003-066023	2000 Cadillac Deville 1G6KF5791YU228024	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-18 (AF-06065)	01-003-045304 Delta-V: 4.14 mph	2008 Toyota Highlander JTEES42A382106144	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-18 (AF-06068)	01-003-010831	2013 Hyundai Sonata 5NPEC4AB0DH793846	StreetDelivery	<u>Download Full</u> Report (FF Speed, DTCs)	USD \$300

2021-02-18 (AF-06070)	01-003-061478 Delta-V: 5.59 mph	2017 Dodge Durango 1C4RDJAG2HC820510	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-19 (AF-06075)	01-003-021050	2013 Ford Fusion 3FA6P0G76DR168634	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-02-19 (AF-06077)	01-002-896453	2016 RAM 1500 1C6RR7NTXGS388286	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-02-19 (AF-06081)	01-002-292223	2019 Chevrolet Traverse 1GNEVJKW8KJ162199	Ethos Risk Services	<u>Download Full Report</u>	USD \$300
2021-02-19 (AF-06083)	01-003-033810 Delta-V: 8.08 mph	2016 Volkswagen Jetta 3VWD67AJXGM325629	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs, Theft)	USD \$300
2021-02-19 (AF-06086)	01-003-068459	2019 Honda Pilot 5FNYP6H46KB033441	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-02-20 (AF-06089)	01-002-915781 Delta-V: 6.21 mph	2013 Hyundai Elantra 5NPDH4AE0DH448369	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-20 (AF-06092)	01-003-077861 Delta-V: 4.35 mph	2018 Chevrolet Sonic 1G1JD5SH8J4110306	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-21 (AF-06095)	01-003-073013 Delta-V: 7.46 mph	2016 Ford Fusion 3FA6P0H70GR243668	Ethos Risk Services	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs, Junk/Salv./Ins., Title Issue)	USD \$300
2021-02-22 (AF-06101)	01-003-025536 Delta-V: 2.72 mph	2018 Lexus ES 58ABK1GG7JU109890	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-02-22 (AF-06104)	01-003-016566 Delta-V: 4.97 mph	2011 Toyota Tundra 5TFUM5F13BX026038	StreetDelivery	<u>Download Full Report</u> (Delta-V)	USD \$300
2021-02-22 (AF-06107)	01-003-058463 Delta-V: 1.86 mph	2021 Volkswagen Atlas 1V2AP2CA5MC501341	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300

2021-02-22 (AF-06110)	01-003-058008 Delta-V: 4.60 mph	2014 Ford Mustang 1ZVBP8AM6E5332486	Ethos Risk Services	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-22 (AF-06113)	01-003-010490 Delta-V: 4.35 mph	2014 Chevrolet Malibu 1G11H5SL3EF286327	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-22 (AF-06116)	01-002-990206	2013 Chevrolet Tahoe 1GN5CBE06DR325460	StreetDelivery	<u>Download Full</u> Report (Accident)	USD \$300
2021-02-22 (AF-06120)	01-002-984289 Delta-V: 4.35 mph	2017 Ford Focus 1FADP3M21HL309938	Ethos Risk Services	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-23 (AF-06125)	01-003-049973	2014 Nissan Maxima 1N4AA5AP5EC909504	StreetDelivery	<u>Download Full</u> Report (Delta-V)	USD \$300
2021-02-23 (AF-06132)	01-003-092335	2013 RAM 1500 1C6RR7PT2DS722416	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-23 (AF-06130)	01-002-900936 Delta-V: 2.73 mph	2011 Lexus RX 2T2BK1BA7BC104083	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed, Junk/Salv./Ins.)	USD \$300
2021-02-23 (AF-06135)	01-003-017285 Delta-V: 5.59 mph	2017 Buick LaCrosse 1G4ZR5SS1HU210874	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-23 (AF-06138)	01-003-072082 Delta-V: 5.57 mph	2007 Lexus RX 2T2HK31U97C021005	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-24 (AF-06143)	01-003-074449	2020 Nissan Altima 1N4BL4BV8LC286026	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-02-24 (AF-06146)	01-002-924835 Delta-V: 8.70 mph	2019 Kia Optima 5XXGV4L22KG291767	HUB Enterprises	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-02-24 (AF-06149)	01-003-017036	2015 Volkswagen Jetta 3VWLA7AJ3FM271583	StreetDelivery	<u>Download Full</u> Report	USD \$300

2021-02-24 (AF-06155)	01-003-082893	2016 Ford Focus 1FADP3F28GL235588	Ethos Risk Services	Download Full Report (DTCs, Accident)	USD \$300
2021-02-24 (AF-06158)	01-003-051231 Delta-V: 30.22 mph	2020 Toyota Corolla 5YFEPRAE6LP094475	HUB Enterprises	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-24 (AF-06152)	01-002-518213 Delta-V: 6.33 mph	2019 Toyota Camry 4T1B21HKXKU011593	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-24 (AF-06161)	01-002-934530	2015 Volkswagen Passat 1VWAT7A31FC006925	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-02-24 (AF-06163)	01-003-008809	2012 BMW X3 5UXWX7C52CL736591	StreetDelivery	Download Full Report (DTCs)	USD \$50
2021-02-25 (AF-06168)	01-003-067927	2017 Dodge Journey 3C4PDDAG2HT513531	StreetDelivery	Download Full Report	USD \$300
2021-02-25 (AF-06180)	01-002-783725	2011 Chevrolet Impala 2G1WB5EKXB1258568	HUB Enterprises	Download Full Report	USD \$300
2021-02-25 (AF-06183)	01-003-094168	2014 Honda Accord 1HGCR2F89EA178682	StreetDelivery	Download Full Report	USD \$300
2021-02-25 (AF-06171)	01-003-000772 Delta-V: 6.84 mph	2015 Honda Civic 2HGFB2F89FH552860	Ethos Risk Services	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-02-25 (AF-06186)	01-003-038844 Delta-V: 0.62 mph	2014 Kia Forte KNAFK4A61E5149703	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-02-25 (AF-06189)	01-003-047905	2014 Honda CR-V 5J6RM4H54EL028824	StreetDelivery	Download Full Report	USD \$300
2021-02-25 (AF-06191)	01-003-119541 Delta-V: 8.08 mph	2015 Jeep Cherokee 1C4PJMD51FW717723	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-02-25 (AF-06194)	01-003-097539 Delta-V: 0.17 mph	2010 Lexus RX 2T2BK1BA9AC036559	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300

2021-02-25 (AF-06199)	01-003-092335	2013 GMC Terrain 2GKFLXE36D6322124	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-02-26 (AF-06207)	01-003-118159	2021 Toyota RAV4 4T3D6RFV4MU015772	StreetDelivery	Download Full Report	USD \$300
2021-02-26 (AF-06209)	01-002-939188 Delta-V: 9.94 mph	2014 Jeep Patriot 1C4NJPBB0ED715306	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-02-26 (AF-06212)	01-003-059945	2015 Honda Accord 1HGCR2F56FA175813	StreetDelivery	Download Full Report	USD \$300
2021-02-26 (AF-06214)	01-003-057748	2019 Chrysler 300 2C3CCAAG1KH590606	StreetDelivery	Download Full Report	USD \$300
2021-02-26 (AF-06217)	01-003-008191 Delta-V: 2.28 mph	2005 Toyota Avalon 4T1BK36B35U060959	Ethos Risk Services	Download Full Report (Delta-V)	USD \$300
2021-02-26 (AF-06220)	01-003-008191	2020 Ford Fusion 3FA6P0D99LR117083	Ethos Risk Services	Download Full Report (DTCs)	USD \$300
2021-02-27 (AF-06222)	01-003-123206	2015 Jeep Wrangler 1C4HJWEG4FL715007	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$300
2021-02-27 (AF-06228)	01-003-081311	2009 Chevrolet Malibu 1G1ZJ57799F194857	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-02-27 (AF-06230)	01-003-123206	2018 Nissan Altima 1N4AL3AP4JC122360	StreetDelivery	Download Full Report	USD \$300
TOTAL					USD \$46,300.00



REPORT SUMMARY

This section provides an overview of the predictive analytics used for the estimation of claim severity, exposure, and fraud risk for the most recent crash or event sequence.



Cost-Benefit

Total Vehicle Scans: 156
Projected Savings: USD \$354,200
Total Value: USD \$818,200
Total Spend: USD \$46,300
ROI: 1667%

Seat Belt Use:

Number of Unbuckled Drivers: 0

Number of Unbuckled Front Passengers: 0

Probability of Injury given detected Collision Severity:

Total number of vehicles (having occupants) with more than 20% probability for initial whiplash: 125

Total number of vehicles (having occupants) with more than 20% probability for long-term whiplash: 78

Total number of vehicles (having occupants) with more than 20% probability for serious injury: 78

**The above statistical categories for injury severity are not mutually exclusive. One vehicle's occupants could be counted in multiple categories; for example, in both the initial symptoms and long-term injury risk.*

**Occupant Injuries****Driver Behavior****Number of Cases with Excessive Speeding:**

91 - 100 mph: 0

100 mph +: 0

Number of Potential Distracted Drivers: 4

Number of Aggressive Acceleration Events: 1

**FNOL Flags****Number of exceptions and discrepancies:**

Potential Staged Collisions: 1

Reported Number of Occupants: N/A

Reported Vehicle Speed or Maneuver: N/A

Diagnostic validation (VIN, actual Airbag Deployment): N/A

Physical Damages (Areas or Date of Loss): N/A

Total Loss Assessment: N/A

**Recommended Action****Moral Hazards:**

Refer excessive speeding moral hazards to underwriting.

Number of cases where speed flagged above 90 mph: 0.

Contributory Negligence (Loss Reductions):

Review contributory negligence of unbuckled front passengers in 3rd Party Liability claims. Number of Cases: 0.

**FLAGS / LOSS INDICATORS**

This section lists flags for further investigation based on known anti-fraud indicators and/or inconsistencies with reported circumstances.

Drive Down: 1 (1.2% of records with crash data)

Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.

Vehicle: 2015 Chevrolet Malibu**Date:** 2021-02-08**Total Flags:** 3[Download
Full
Report](#)

No Avoidance Maneuver: 3 (3.8% of records with crash data)

No driver input for either brake or steering maneuver within the 2 seconds prior to impact.

Vehicle: 2014 Nissan Maxima

Date: 2021-02-23

Total Flags: 3

[Download Full Report](#)

Vehicle: 2016 Toyota RAV4

Date: 2021-02-11

Total Flags: 3

[Download Full Report](#)

Vehicle: 2019 Toyota Camry

Date: 2021-02-24

Total Flags: 6

[Download Full Report](#)

Possible Distracted Driver: 4 (5.0% of records with crash data)

In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.

Vehicle: 2016 Ford Escape

Date: 2021-02-04

Total Flags: 1

[Download Full Report](#)

Vehicle: 2016 Ford Escape

Date: 2021-02-18

Total Flags: 3

[Download Full Report](#)

Vehicle: 2017 Jeep Grand Cherokee

Date: 2021-02-08

Total Flags: 1

[Download Full Report](#)

Vehicle: 2019 Toyota Camry

Date: 2021-02-24

Total Flags: 6

[Download Full Report](#)

No Pre-Impact Speed Reduction: 1 (1.2% of records with crash data)

Brake is only applied lightly with no meaningful reduction in speed.

Vehicle: 2015 Jeep Cherokee

Date: 2021-02-25

Total Flags: 3

[Download Full Report](#)

Steered-To Sideswipe: 0 (0.0% of records with crash data)

Driver steers either left or right, causing an impact on the steered-to side.

Swoop & Squat: 0 (0.0% of records with crash data)

Driver steers to make a lane change and quickly applies brakes.

Panic Stop: 3 (3.8% of records with crash data)

Rear-end collision where driver brakes just prior to impact.

Vehicle: 2011 Lexus RX**Date:** 2021-02-23**Total Flags:** 3[Download Full Report](#)**Vehicle:** 2010 Cadillac SRX**Date:** 2021-02-12**Total Flags:** 3[Download Full Report](#)**Vehicle:** 2015 Subaru XV CrossTrek**Date:** 2021-02-08**Total Flags:** 3[Download Full Report](#)**Possible Non-Recent Event: 49** (61.2% of records with crash data)

Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval. Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).

Vehicle: 2013 Hyundai Elantra**Date:** 2021-02-16**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2018 Nissan Frontier**Date:** 2021-02-11**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2014 Jeep Wrangler**Date:** 2021-02-13**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2016 Ford Escape**Date:** 2021-02-18**Total Flags:** 3[Download Full Report](#)**Vehicle:** 2017 Chevrolet Trax**Date:** 2021-02-16**Total Flags:** 1[Download Full Report](#)**Vehicle:** 2010 Chevrolet Equinox**Date:** 2021-02-02**Total Flags:** 3[Download Full Report](#)**Vehicle:** 2015 Dodge Dart**Date:** 2021-02-16**Total Flags:** 3[Download Full Report](#)**Vehicle:** 2018 Lexus ES**Date:** 2021-02-22**Total Flags:** 1[Download Full Report](#)**Vehicle:** 2019 Jeep Cherokee**Date:** 2021-02-08**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2015 Honda Civic**Date:** 2021-02-25**Total Flags:** 1[Download Full Report](#)**Vehicle:** 2017 Chevrolet Cruze**Date:** 2021-02-03**Total Flags:** 1[Download Full Report](#)

Vehicle: 2018 Ford Escape	Date: 2021-02-15	Total Flags: 1	Download Full Report
Vehicle: 2018 Chevrolet Sonic	Date: 2021-02-20	Total Flags: 2	Download Full Report
Vehicle: 2014 Nissan Maxima	Date: 2021-02-23	Total Flags: 3	Download Full Report
Vehicle: 2014 Ford Mustang	Date: 2021-02-22	Total Flags: 2	Download Full Report
Vehicle: 2016 Volkswagen Jetta	Date: 2021-02-19	Total Flags: 4	Download Full Report
Vehicle: 2015 Volkswagen Passat	Date: 2021-02-16	Total Flags: 2	Download Full Report
Vehicle: 2018 Chevrolet Silverado	Date: 2021-02-02	Total Flags: 2	Download Full Report
Vehicle: 2019 Kia Optima	Date: 2021-02-24	Total Flags: 2	Download Full Report
Vehicle: 2019 Toyota 4Runner	Date: 2021-02-08	Total Flags: 1	Download Full Report
Vehicle: 2018 Toyota 4Runner	Date: 2021-02-01	Total Flags: 2	Download Full Report
Vehicle: 2016 Toyota Camry	Date: 2021-02-09	Total Flags: 1	Download Full Report
Vehicle: 2013 Hyundai Elantra	Date: 2021-02-20	Total Flags: 2	Download Full Report
Vehicle: 2013 Nissan Sentra	Date: 2021-02-16	Total Flags: 2	Download Full Report
Vehicle: 2019 Kia Forte	Date: 2021-02-09	Total Flags: 2	Download Full Report
Vehicle: 2014 Kia Forte	Date: 2021-02-25	Total Flags: 2	Download Full Report
Vehicle: 2013 Hyundai Tucson	Date: 2021-02-17	Total Flags: 2	Download Full Report

Vehicle: 2014 Chevrolet Traverse	Date: 2021-02-18	Total Flags: 3	Download Full Report
Vehicle: 2016 Ford Fusion	Date: 2021-02-21	Total Flags: 1	Download Full Report
Vehicle: 2008 Buick LaCrosse	Date: 2021-02-17	Total Flags: 3	Download Full Report
Vehicle: 2017 Dodge Durango	Date: 2021-02-18	Total Flags: 2	Download Full Report
Vehicle: 2015 Nissan Sentra	Date: 2021-02-03	Total Flags: 2	Download Full Report
Vehicle: 2017 Lexus NX	Date: 2021-02-05	Total Flags: 2	Download Full Report
Vehicle: 2014 Chevrolet Malibu	Date: 2021-02-22	Total Flags: 2	Download Full Report
Vehicle: 2010 Cadillac SRX	Date: 2021-02-12	Total Flags: 3	Download Full Report
Vehicle: 2016 Dodge Dart	Date: 2021-02-16	Total Flags: 2	Download Full Report
Vehicle: 2017 Buick LaCrosse	Date: 2021-02-23	Total Flags: 1	Download Full Report
Vehicle: 2017 Ford Focus	Date: 2021-02-22	Total Flags: 2	Download Full Report
Vehicle: 2015 Chevrolet Malibu	Date: 2021-02-11	Total Flags: 2	Download Full Report
Vehicle: 2014 Toyota Corolla	Date: 2021-02-10	Total Flags: 2	Download Full Report
Vehicle: 2019 Nissan Versa	Date: 2021-02-17	Total Flags: 2	Download Full Report
Vehicle: 2017 Toyota Corolla	Date: 2021-02-02	Total Flags: 2	Download Full Report
Vehicle: 2014 Mazda CX-5	Date: 2021-02-17	Total Flags: 2	Download Full Report

Vehicle: 2016 Buick Encore	Date: 2021-02-04	Total Flags: 1	Download Full Report
Vehicle: 2014 Jeep Patriot	Date: 2021-02-26	Total Flags: 1	Download Full Report
Vehicle: 2016 Toyota RAV4	Date: 2021-02-11	Total Flags: 3	Download Full Report
Vehicle: 2015 Chevrolet Malibu	Date: 2021-02-08	Total Flags: 3	Download Full Report
Vehicle: 2015 Subaru XV CrossTrek	Date: 2021-02-08	Total Flags: 3	Download Full Report
Vehicle: 2019 Toyota Camry	Date: 2021-02-24	Total Flags: 6	Download Full Report

Possible Intentional Damage: 0 (0.0% of records with crash data)

Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.

Pre-Damaged Vehicle: 19 (23.8% of records with crash data)

Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.

Vehicle: 2015 Jeep Cherokee	Date: 2021-02-25	Total Flags: 3	Download Full Report
Vehicle: 2018 Nissan Frontier	Date: 2021-02-11	Total Flags: 2	Download Full Report
Vehicle: 2015 Dodge Dart	Date: 2021-02-16	Total Flags: 3	Download Full Report
Vehicle: 2009 Scion xB	Date: 2021-02-09	Total Flags: 3	Download Full Report
Vehicle: 2008 Toyota Highlander	Date: 2021-02-18	Total Flags: 1	Download Full Report
Vehicle: 2011 Lexus RX	Date: 2021-02-23	Total Flags: 3	Download Full Report

Vehicle: 2014 Nissan Maxima	Date: 2021-02-23	Total Flags: 3	Download Full Report
Vehicle: 2010 Lexus IS	Date: 2021-02-11	Total Flags: 2	Download Full Report
Vehicle: 2016 Volkswagen Jetta	Date: 2021-02-19	Total Flags: 4	Download Full Report
Vehicle: 2018 Toyota 4Runner	Date: 2021-02-01	Total Flags: 2	Download Full Report
Vehicle: 2014 Chevrolet Traverse	Date: 2021-02-18	Total Flags: 3	Download Full Report
Vehicle: 2017 Lexus NX	Date: 2021-02-05	Total Flags: 2	Download Full Report
Vehicle: 2015 Nissan Altima	Date: 2021-02-03	Total Flags: 2	Download Full Report
Vehicle: 2017 Toyota Corolla	Date: 2021-02-02	Total Flags: 2	Download Full Report
Vehicle: 2007 Toyota Camry	Date: 2021-02-10	Total Flags: 2	Download Full Report
Vehicle: 2007 Toyota RAV4	Date: 2021-02-17	Total Flags: 2	Download Full Report
Vehicle: 2012 Chevrolet Sonic	Date: 2021-02-03	Total Flags: 2	Download Full Report
Vehicle: 2021 Volkswagen Atlas	Date: 2021-02-22	Total Flags: 2	Download Full Report
Vehicle: 2019 Toyota Camry	Date: 2021-02-24	Total Flags: 6	Download Full Report

Unbuckled Driver: 0 (0.0% of records with crash data)

Driver not wearing seat belt at the time of crash data recording.

Unbuckled Passenger: 0 (0.0% of records with crash data)

Front passenger not wearing seat belt at the time of crash data recording.

Emissions Test Failure: 26 (32.5% of records with crash data)

Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).

Vehicle: 2012 Chrysler 200	Date: 2021-02-03	Total Flags: 1	Download Full Report
Vehicle: 2009 Chevrolet Malibu	Date: 2021-02-27	Total Flags: 1	Download Full Report
Vehicle: 2013 Hyundai Sonata	Date: 2021-02-18	Total Flags: 1	Download Full Report
Vehicle: 2012 RAM 2500	Date: 2021-02-17	Total Flags: 1	Download Full Report
Vehicle: 2002 Toyota Camry	Date: 2021-02-15	Total Flags: 2	Download Full Report
Vehicle: 2010 Chevrolet Equinox	Date: 2021-02-02	Total Flags: 3	Download Full Report
Vehicle: 2009 Scion xB	Date: 2021-02-09	Total Flags: 3	Download Full Report
Vehicle: 2015 Jeep Wrangler	Date: 2021-02-27	Total Flags: 1	Download Full Report
Vehicle: 2007 Ford Fusion	Date: 2021-02-03	Total Flags: 2	Download Full Report
Vehicle: 2008 Dodge Grand Caravan	Date: 2021-02-13	Total Flags: 1	Download Full Report
Vehicle: 2010 Mazda 6	Date: 2021-02-16	Total Flags: 1	Download Full Report
Vehicle: 2001 Pontiac Grand AM	Date: 2021-02-10	Total Flags: 1	Download Full Report
Vehicle: 2016 Volkswagen Jetta	Date: 2021-02-19	Total Flags: 4	Download Full Report
Vehicle: 2008 Chevrolet Suburban	Date: 2021-02-17	Total Flags: 1	Download Full Report
Vehicle: 2017 Ford Focus	Date: 2021-02-02	Total Flags: 1	Download Full Report

Vehicle: 2008 Dodge Grand Caravan	Date: 2021-02-02	Total Flags: 1	Download Full Report
Vehicle: 2008 Buick LaCrosse	Date: 2021-02-17	Total Flags: 3	Download Full Report
Vehicle: 2020 Toyota Corolla	Date: 2021-02-24	Total Flags: 1	Download Full Report
Vehicle: 2010 Cadillac SRX	Date: 2021-02-12	Total Flags: 3	Download Full Report
Vehicle: 2017 Dodge Challenger	Date: 2021-02-09	Total Flags: 1	Download Full Report
Vehicle: 2012 Chevrolet Impala	Date: 2021-02-15	Total Flags: 1	Download Full Report
Vehicle: 2013 GMC Terrain	Date: 2021-02-25	Total Flags: 1	Download Full Report
Vehicle: 2000 Cadillac Deville	Date: 2021-02-18	Total Flags: 1	Download Full Report
Vehicle: 2004 Toyota Camry	Date: 2021-02-02	Total Flags: 2	Download Full Report
Vehicle: 2007 Toyota Camry	Date: 2021-02-11	Total Flags: 1	Download Full Report
Vehicle: 2019 Toyota Camry	Date: 2021-02-24	Total Flags: 6	Download Full Report
Low Velocity Impact: 54 (67.5% of records with crash data) An impact in which the mean acceleration is below 3.0 g.			
Vehicle: 2013 Hyundai Elantra	Date: 2021-02-16	Total Flags: 2	Download Full Report
Vehicle: 2015 Jeep Cherokee	Date: 2021-02-25	Total Flags: 3	Download Full Report
Vehicle: 2014 Jeep Wrangler	Date: 2021-02-13	Total Flags: 2	Download Full Report
Vehicle: 2016 Ford Escape	Date: 2021-02-18	Total Flags: 3	Download Full Report

Vehicle: 2002 Toyota Camry	Date: 2021-02-15	Total Flags: 2	Download Full Report
Vehicle: 2010 Chevrolet Equinox	Date: 2021-02-02	Total Flags: 3	Download Full Report
Vehicle: 2015 Dodge Dart	Date: 2021-02-16	Total Flags: 3	Download Full Report
Vehicle: 2009 Scion xB	Date: 2021-02-09	Total Flags: 3	Download Full Report
Vehicle: 2007 Ford Fusion	Date: 2021-02-03	Total Flags: 2	Download Full Report
Vehicle: 2019 Jeep Cherokee	Date: 2021-02-08	Total Flags: 2	Download Full Report
Vehicle: 2011 Lexus RX	Date: 2021-02-23	Total Flags: 3	Download Full Report
Vehicle: 2018 Chevrolet Sonic	Date: 2021-02-20	Total Flags: 2	Download Full Report
Vehicle: 2005 Toyota Highlander	Date: 2021-02-08	Total Flags: 1	Download Full Report
Vehicle: 2010 Lexus IS	Date: 2021-02-11	Total Flags: 2	Download Full Report
Vehicle: 2014 Ford Mustang	Date: 2021-02-22	Total Flags: 2	Download Full Report
Vehicle: 2016 Volkswagen Jetta	Date: 2021-02-19	Total Flags: 4	Download Full Report
Vehicle: 2015 Volkswagen Passat	Date: 2021-02-16	Total Flags: 2	Download Full Report
Vehicle: 2018 Chevrolet Silverado	Date: 2021-02-02	Total Flags: 2	Download Full Report
Vehicle: 2019 Kia Optima	Date: 2021-02-24	Total Flags: 2	Download Full Report
Vehicle: 2013 Hyundai Elantra	Date: 2021-02-20	Total Flags: 2	Download Full Report

Vehicle: 2013 Nissan Sentra	Date: 2021-02-16	Total Flags: 2	Download Full Report
Vehicle: 2019 Kia Forte	Date: 2021-02-09	Total Flags: 2	Download Full Report
Vehicle: 2014 Kia Forte	Date: 2021-02-25	Total Flags: 2	Download Full Report
Vehicle: 2013 Hyundai Tucson	Date: 2021-02-17	Total Flags: 2	Download Full Report
Vehicle: 2014 Chevrolet Traverse	Date: 2021-02-18	Total Flags: 3	Download Full Report
Vehicle: 2017 Nissan Maxima	Date: 2021-02-17	Total Flags: 1	Download Full Report
Vehicle: 2005 Toyota Avalon	Date: 2021-02-26	Total Flags: 1	Download Full Report
Vehicle: 2008 Buick LaCrosse	Date: 2021-02-17	Total Flags: 3	Download Full Report
Vehicle: 2017 Dodge Durango	Date: 2021-02-18	Total Flags: 2	Download Full Report
Vehicle: 2004 Buick Regal	Date: 2021-02-11	Total Flags: 1	Download Full Report
Vehicle: 2015 Nissan Sentra	Date: 2021-02-03	Total Flags: 2	Download Full Report
Vehicle: 2014 Chevrolet Malibu	Date: 2021-02-22	Total Flags: 2	Download Full Report
Vehicle: 2015 Nissan Altima	Date: 2021-02-03	Total Flags: 2	Download Full Report
Vehicle: 2016 Dodge Dart	Date: 2021-02-16	Total Flags: 2	Download Full Report
Vehicle: 2017 Ford Focus	Date: 2021-02-22	Total Flags: 2	Download Full Report
Vehicle: 2015 Chevrolet Malibu	Date: 2021-02-11	Total Flags: 2	Download Full Report

Vehicle: 2014 Toyota Corolla	Date: 2021-02-10	Total Flags: 2	Download Full Report
Vehicle: 2008 Toyota Avalon	Date: 2021-02-03	Total Flags: 1	Download Full Report
Vehicle: 2005 Toyota Sequoia	Date: 2021-02-11	Total Flags: 1	Download Full Report
Vehicle: 2019 Nissan Versa	Date: 2021-02-17	Total Flags: 2	Download Full Report
Vehicle: 2004 Toyota Camry	Date: 2021-02-02	Total Flags: 2	Download Full Report
Vehicle: 2007 Toyota Camry	Date: 2021-02-10	Total Flags: 2	Download Full Report
Vehicle: 2014 Chevrolet Malibu	Date: 2021-02-09	Total Flags: 1	Download Full Report
Vehicle: 2007 Toyota RAV4	Date: 2021-02-17	Total Flags: 2	Download Full Report
Vehicle: 2012 Chevrolet Sonic	Date: 2021-02-03	Total Flags: 2	Download Full Report
Vehicle: 2013 Kia Sorento	Date: 2021-02-17	Total Flags: 1	Download Full Report
Vehicle: 2010 Lexus RX	Date: 2021-02-25	Total Flags: 1	Download Full Report
Vehicle: 2021 Volkswagen Atlas	Date: 2021-02-22	Total Flags: 2	Download Full Report
Vehicle: 2014 Mazda CX-5	Date: 2021-02-17	Total Flags: 2	Download Full Report
Vehicle: 2016 Toyota RAV4	Date: 2021-02-11	Total Flags: 3	Download Full Report
Vehicle: 2015 Chevrolet Malibu	Date: 2021-02-08	Total Flags: 3	Download Full Report
Vehicle: 2015 Subaru XV CrossTrek	Date: 2021-02-08	Total Flags: 3	Download Full Report

Vehicle: 2019 Toyota Camry**Date:** 2021-02-24**Total Flags:** 6[Download
Full
Report](#)**Vehicle:** 2007 Lexus RX**Date:** 2021-02-23**Total Flags:** 1[Download
Full
Report](#)**Odometer Rollback: 0** (0.0% of records with crash data)

Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.



STATISTICAL ANALYSIS

This section lists statistics based on an analysis of vehicle reports associated with the company.

General Statistics

General statistics related to reports completed during the reporting period.

Description	Statistics
Total number of vehicle scans during period	156
Total number of supported vehicles	154
Total number of supported vehicle reports with crash data	80
Total number of supported vehicle reports with no event data	74
Total number of vehicle reports with excess speed detected	N/A
Total number of vehicle reports with top speed information	76
Total number of loss indicators	134
Total number with DriveClean passed v.s. failed	134:26
Total number of DTCs found	57
Total number of unique DTCs	49
Total number of vehicles with more than 20% probability for initial whiplash	125
Total number of vehicles with more than 20% probability for long-term whiplash	78
Total number of vehicles with more than 20% probability for serious injury	78

Statistics on Maximum Travel Speed

This section lists statistics on maximum travel speed recorded in the most recent crash event(s). The maximum travel speed is extracted from pre-crash data of up to 5 seconds prior to impact. Therefore, the travel speed is not necessarily equivalent to the speed at impact.

Speed Range	Number of Cases
-------------	-----------------

61 - 70 mph	1
71 - 80 mph	0
81 - 90 mph	0
91 - 100 mph	0
100 mph +	0

Statistics on Unbuckled Occupant Injury Risk

This section lists statistics on injury risk for unbuckled occupants.

Probability of Long-term WAD	Number of Cases
1 - 10%	0
11 - 20%	0
21 - 30%	0
31 - 40%	0
41 - 50%	0
51 - 60%	0
61 - 70%	0
71 - 80%	0
81 - 90%	0
91%+	0

Probability of Serious Injury	Number of Cases
1 - 10%	0
11 - 20%	0
21 - 30%	0
31 - 40%	0
41 - 50%	0
51%+	0

Statistics on Flags / Loss Indicators

Statistics categorized by flags / loss indicators.

Indicator	Description	Number of Cases
Drive Down	Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.	1
No Avoidance Maneuver	No driver input for either brake or steering maneuver within the 2 seconds prior to impact.	3
Possible Distracted Driver	In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.	4

No Pre-Impact Speed Reduction	Brake is only applied lightly with no meaningful reduction in speed.	1
Steered-To Sideswipe	Driver steers either left or right, causing an impact on the steered-to side.	0
Swoop & Squat	Driver steers to make a lane change and quickly applies brakes.	0
Panic Stop	Rear-end collision where driver brakes just prior to impact.	3
Possible Non-Recent Event	Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval. Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).	49
Possible Intentional Damage	Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.	0
Pre-Damaged Vehicle	Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.	19
Unbuckled Driver	Driver not wearing seat belt at the time of crash data recording.	0
Unbuckled Passenger	Front passenger not wearing seat belt at the time of crash data recording.	0
Emissions Test Failure	Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).	26
Low Velocity Impact	An impact in which the mean acceleration is below 3.0 g.	54
Odometer Rollback	Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.	0

Statistics by Model Year

Statistics categorized by vehicle model year.

Year	Cases	Total Flags	Distracted Drivers	Speeding Cases	Short-term WAD > 20%	Long-term WAD > 20%	Serious Injury > 20%
2021	2	2	0	0	1	1	1
2020	3	0	0	0	3	2	3
2019	10	14	1	0	8	4	4
2018	16	10	0	0	15	10	10
2017	19	13	1	0	15	10	10
2016	14	15	2	0	13	6	6
2015	19	21	0	0	19	10	10
2014	15	20	0	0	11	6	6
2013	14	9	0	0	12	9	9
2012	4	2	0	0	3	3	3
2011	6	3	0	0	5	4	3
2010	6	7	0	0	4	2	2

2009	3	2	0	0	2	2	2
2008	8	4	0	0	7	5	5
2007	5	6	0	0	2	1	1
2006	1	0	0	0	1	1	1
2005	3	3	0	0	0	0	0
2004	3	2	0	0	1	0	0
2002	1	1	0	0	1	0	0
2001	1	0	0	0	1	1	1
2000	1	0	0	0	1	1	1

Statistics by Vehicle Make

Statistics categorized by vehicle make.

Make	# Cases	Front Delta-V Range	Rear Delta-V Range	Side Delta-V Range
Ford	0	4.3 to 7.5 mph	1.9 to 9.9 mph	0.4 to 0.7 mph
GMC	0	N/A	N/A	N/A
Honda	0	N/A	6.8 to 6.8 mph	N/A
Acura	0	N/A	N/A	N/A
Pontiac	0	N/A	N/A	N/A
Kia	0	2.5 to 18.0 mph	0.6 to 0.6 mph	0.6 to 3.1 mph
Toyota	0	0.5 to 30.2 mph	2.3 to 6.0 mph	0.1 to 23.9 mph
Scion	0	2.8 to 2.8 mph	7.1 to 7.1 mph	N/A
Jeep	0	5.6 to 9.9 mph	5.6 to 5.6 mph	0.6 to 2.5 mph
Infiniti	0	N/A	N/A	N/A
Mazda	0	6.2 to 6.2 mph	N/A	N/A
Subaru	0	N/A	5.0 to 5.0 mph	N/A
Lexus	0	0.2 to 7.0 mph	2.7 to 4.5 mph	0.4 to 7.7 mph
Dodge	0	5.6 to 8.1 mph	6.2 to 6.2 mph	1.2 to 1.2 mph
Chrysler	0	N/A	1.2 to 1.2 mph	12.4 to 12.4 mph
Cadillac	0	N/A	9.9 to 9.9 mph	0.6 to 0.6 mph
Buick	0	1.8 to 6.8 mph	5.6 to 5.6 mph	N/A
Nissan	0	0.6 to 9.3 mph	0.6 to 8.1 mph	0.6 to 4.3 mph
Hyundai	0	5.0 to 8.1 mph	N/A	0.6 to 3.1 mph
Volkswagen	0	1.9 to 8.1 mph	1.2 to 6.2 mph	0.6 to 1.2 mph
RAM	0	N/A	N/A	N/A
Chevrolet	0	4.3 to 7.5 mph	5.6 to 6.2 mph	0.6 to 4.3 mph

Event Data Disclaimer

It is important to note is that if a vehicle was spinning or rolling surrounding the collision, then the report's speed measurements would not accurately reflect the actual speed of the vehicle during/after it lost control; the speed measurement is typically based on the wheel speed sensor. Signs of this type of anomaly would be rapid changes in speed between the brief timing intervals. The reported speed may be an average of the four wheels; thus could also be skewed by spinning wheels. In combination with scene evidence, an expert could assess vehicle speed by analyzing the data via accident reconstruction and engineering analysis.

Users of the Collision Sciences service and reviewers of the reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Collision Sciences Inc. and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Collision Sciences Inc. expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the online services, evidence logistics, EDR data, EDR software or use thereof.

Injury Risk / Biomechanical Assessment Disclaimer

The estimated injury risks are calculated based on the recorded crash pulse, relative energy changes, known vehicle characteristics in standardized and real-world crashes, published databases, and recognized studies. The provided information can be used as a guide in settlement decisions but cannot be used to definitively prove the existence or non-presence of an injury. In cases with a very low risk of whiplash or other injury, claims can be identified for further investigation. Conversely, for cases with a high risk of whiplash or other injury, the claim can be expedited, since early treatment is often effective in reducing the long term prognosis.

Delta-V (Change in Velocity) has traditionally been used to correlate crash severity with risk of occupant injury (Augenstein et al., 2003; Bahouth et al., 2004; Sunnevång et al., 2009; Korjonen et al., 2011). Injury tolerance and risk for various injury types based on real-world crashes with recorded crash data have been established (Gabauer and Gabler, 2006; Gabauer and Gabler, 2008; Kullgren and Krafft, 2008; Ydenius, 2010). Large-scale retrospective studies have also examined the relationship between minor severity crashes and the risk of occupant whiplash complaints, including studies in the U.S. (Tencer et al., 2001), Germany (Els et al., 2005; Hell et al., 2002) and Sweden (Krafft et al., 2005). Injury risk studies consider the following risk factors: Crash configuration (front, side, rear, rollover), Delta-V = Change in velocity, Vehicle mass (size, weight), Vehicle stiffness, Vehicle geometry and engagement, Restraint system and its adjustment, Occupant seated position, Occupant profile (age, gender, previous injury), Number of WAD symptoms, and Psychological Distress. Structural damage and known whiplash thresholds overlap. Indicating structural damage and repair cost are a poor predictor of minor injury threshold. Damage can also vary widely by vehicle model and impact configuration.

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on behalf of Collision Sciences <service@collisionsciences.ca> [service@collisionsciences.ca]
Sent: 4/9/2021 2:50:54 PM
To: Brian Hsu [bhsu@collisionsciences.ca]
Subject: ALERT - Nissan Cable 828 Module Scanned

CrashScan

Accident Detector

Nissan Cable 828 Module Scanned

This vehicle uses Nissan cable 828. Check data accuracy with CDR replay.
Check if any new information is available.

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Vehicle
2020 Nissan Altima

VIN
1N4BL4CV5LC273538

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on behalf of Collision Sciences <service@collisionsciences.ca> [service@collisionsciences.ca]
Sent: 7/15/2020 9:33:46 PM
To: Brian Hsu [bhsu@collisionsciences.ca]
Subject: ALERT - BMW Cable 798 Module Scanned

CrashScan

Accident Detector

BMW Cable 798 Module Scanned

This vehicle uses BMW cable 798, which is the version with extended PIDs. Check data decoding scheme with CDR replay. The report has been placed under review.

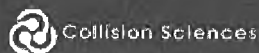
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Vehicle
2015 Mini Countryman

VIN
WMWZB3C56FWR45659

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on behalf of Collision Sciences <service@collisionsciences.ca> [service@collisionsciences.ca]
Sent: 12/13/2021 8:40:50 PM
To: Brian Hsu [bhsu@collisionsciences.ca]
Subject: ALERT - Honda Cable 825 Module Scanned

CrashScan

Accident Detector

Honda Cable 825 Module Scanned

This vehicle uses Honda cable 825. Check data accuracy with CDR replay.
Check if any new information is available.

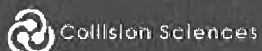
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Vehicle
2018 Honda Accord

VIN
1HGCV1F59JA054045

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on behalf of Collision Sciences <service@collisionsciences.ca> [service@collisionsciences.ca]
Sent: 5/11/2022 5:44:17 PM
To: Brian Hsu [bhsu@collisionsciences.ca]
Subject: ALERT - BMW Unknown Software Version

CrashScan

Accident Detector

BMW Unknown Software Version

The response to 22 FA 11 is not 04 00 01, 04 00 02, 04 00 03, 04 00 04, or 04 00 08. Check data decoding scheme with CDR replay. The report has been placed under review.

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Vehicle
2014 Mini Hardtop

VIN
WMWXM7C53ET985786

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Collision Sciences **MANAGEMENT REPORT**

EXPOSURE, RISK & DECISION SUPPORT

Company: StreetDelivery

Reporting Period:

2021-09-01 to 2021-09-30

Generated: 2021-10-01 15:27:22 (UTC)



LIST OF PURCHASED REPORTS

This section shows the list of vehicle reports purchased during the reporting period.

Report Info	Claim Number	Vehicle	Investigator	Links (Tags)	Fee
2021-09-01 (LMC-US-01131)	046273077	2016 Chrysler 200 1C3CCCBB6GN188481	Neil Paz	Download Full Report	USD \$270
2021-09-01 (SA-US-00151)	AU-0000000-647763	2016 Ford Transit Connect NM0LS7E71G1244800	Daniel Duchene	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-01 (LMC-US-01134)	046591953	2021 Toyota RAV4 2T3G1RFV5MW221923	Paul Miceli	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-09-02 (LMC-US-01137)	045116815	2006 Chevrolet Silverado 1GBJC34D06E274356	Bryce Kieren	Download Full Report	USD \$270
2021-09-02 (LMC-US-01140)	AB949-416852	2018 GMC Terrain 3GKALTEV0JL154234	Jon Rousseve	Download Full Report	USD \$270
2021-09-02 (LMC-US-01144)	046613663	2012 Ford Focus 1FAHP3K21CL462610	Rich Clarke	Download Full Report (Delta-V, EDR Speed, FF Speed, DTCs)	USD \$270
2021-09-02 (LMC-US-01146)	046360034	2006 Dodge Durango 1D8HB48NX6F156915	Dan Eddy	Download Full Report	USD \$270
2021-09-02 (LMC-US-01149)	046423326	2009 Chevrolet Impala 2G1WB57N791200306	Holly Covey	Download Full Report	USD \$270
2021-09-02 (LMC-US-01152)	045800808	2007 Buick Rainier 5GADT13S772138937	Paul Miceli	Download Full Report (DTCs)	USD \$270

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2021-09-03 (LMC-US-01155)	046642185	2012 Chevrolet Silverado 1GCNCPEA1CZ180953	Holly Covey	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-03 (LMC-US-01158)	046599075	2018 Honda HR-V 3CZRU6H75JM710309	Michelle Petrillo	<u>Download Full</u> Report (DTCs)	USD \$270
2021-09-03 (AMI-00022)	60004013286-02	2018 Chevrolet Impala 2G1125S35J9103840	Amy Slater	<u>Download Full</u> Report	USD \$270
2021-09-03 (LMC-US-01162)	AB949-417398	2018 Lexus NX JTJBARBZ1J2174720	Jon Rousseve	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-09-03 (LMC-US-01165)	046423111	2017 Dodge Journey 3C4PDCABXHT599847	Kevin Sellers	<u>Download Full</u> Report (DTCs)	USD \$270
2021-09-03 (LMC-US-01167)	045889738	2013 Nissan Sentra 3N1AB7AP7DL674323	Holly Covey	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-09-03 (LMC-US-01169)	046628128	2019 Nissan Sentra 3N1AB7AP6KY270316	Jon Rousseve	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-09-07 (LMC-US-01170)	046617245	2009 Toyota Camry 4T1BE46K99U350559	Brian Gill	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-09-08 (LMC-US-01173)	046601374	2019 Hyundai Kona KM8K12AA4KU290999	Dan Eddy	<u>Download Full</u> Report (Delta-V, EDR Speed, Theft)	USD \$270
2021-09-08 (LMC-US-01175)	046692578	2015 Nissan Sentra 3N1AB7AP2FL680386	Steve Spilka	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-09-08 (PNC-US-00015)	21VISLP00	2019 Hyundai Elantra 5NPD84LF9KH402221	Dan Eddy	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270

2021-09-08 (LMC-US-01177)	0464188547	2013 Chrysler 200 1C3CCBBB5DN545266	Jim White	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs, Junk/Salv./Ins., Theft, Title Issue)	USD \$270
2021-09-09 (SA-US-00153)	AU-0000000-647666	2021 Jeep Grand Cherokee 1C4RJFBG9MC707006	Kevin Sellers	<u>Download Full Report</u>	USD \$270
2021-09-09 (LMC-US-01180)	046483005	2020 Chevrolet Malibu 1G1ZB5ST1LF016837	Mike Reid	<u>Download Full Report</u>	USD \$270
2021-09-09 (LMC-US-01184)	046724085	2018 Nissan Sentra 3N1AB7AP5JY281466	Kevin Sellers	<u>Download Full Report</u>	USD \$270
2021-09-09 (LMC-US-01188)	046244335	2017 Chevrolet Impala 1G1105S33HU199163	Chachi Woods	<u>Download Full Report</u>	USD \$270
2021-09-09 (SA-US-00156)	AU-0000000-649080	2020 Honda Odyssey 5FNRL6H72LB061651	Zach Patterson	<u>Download Full Report</u> (DTCs)	USD \$270
2021-09-09 (LMC-US-01191)	046663331	2019 Hyundai Accent 3KPC24A37KE051593	Bryce Kieren	<u>Download Full Report</u>	USD \$270
2021-09-10 (LMC-US-01193)	043383082	2020 Subaru Impreza 4S3GKAB64L3600359	Robin Hansen	<u>Download Full Report</u>	USD \$270
2021-09-10 (LMC-US-01202)	046620628	2020 Chevrolet Malibu 1G1ZD5ST5LF029388	Kevin Sellers	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-09-10 (LMC-US-01205)	046256977	2017 Nissan Altima 1N4AL3AP2HC472189	Paul Miceli	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-14 (LMC-US-01211)	046760441	2021 Jeep Wrangler 1C4HJXEN6MW605964	Paul Miceli	<u>Download Full Report</u>	USD \$270
2021-09-14 (LMC-US-01215)	046578216	2015 Lexus RC JTHSE5BC3F5001507	Amy Slater	<u>Download Full Report</u>	USD \$270
2021-09-15 (SA-US-00159)	AU-0000000-651970	2020 Ford F-250 1FTBF2B60LED19975	Mark Herrmann	<u>Download Full Report</u> (DTCs)	USD \$270
2021-09-15 (LMC-US-01218)	046129749	2017 Acura MDX 5FRYD3H54HB002001	Neil Paz	<u>Download Full Report</u> (Accident)	USD \$270

2021-09-15 (LMC-US-01221)	046794002	2018 Chevrolet Silverado 1GCVKNEC1JZ291623	Rick Tillett	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-09-15 (LMC-US-01224)	046526845	2018 Ford F-150 1FTEW1CP8JKE21957	Neil Paz	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-09-15 (LMC-US-01227)	046655214	2019 Chevrolet Malibu 1G1ZD5ST1KF123248	Gary Alderson	<u>Download Full</u> Report (DTCs)	USD \$270
2021-09-15 (LMC-US-01229)	046828324	2015 Nissan Altima 1N4AL3AP8FN312612	John Guthrie	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-09-16 (LMC-US-01232)	046742829	2019 Kia Sorento 5XYPG4A30KG510999	Steve Spilka	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-09-16 (LMC-US-01234)	046833321	2018 Nissan Altima 1N4AL3AP2JC163151	Kevin Sellers	<u>Download Full</u> Report	USD \$270
2021-09-16 (GCM-US-00004)	NYTR21090325	2020 Dodge Charger 2C3CDXGJ7LH141404	Denise Littman	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$270
2021-09-16 (LMC-US-01237)	046728130	2018 Honda Accord 1HGCV1F12JA007081	Mike Reid	<u>Download Full</u> Report (DTCs)	USD \$270
2021-09-16 (LMC-US-01240)	046798297	2003 Ford Mustang 1FAFP40443F395470	Scott Simmers	<u>Download Full</u> Report (Delta-V)	USD \$270
2021-09-17 (LMC-US-01243)	AB413-35834	2017 Ford Focus 1FADP3FE7HL303651	Mel Evans	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-17 (NM-00049)	225869-GM	2021 Toyota Tundra 5TFDY5F19MX959417	Joseph Quattrocchi	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$270

2021-09-17 (SA-US-00161)	AU-0000000-649091	2017 RAM 3500 3C63RPGL8HG785121	John Guthrie	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-09-17 (LMC-US-01245)	046360034	2011 RAM 1500 1D7RV1CT0BS654532	Dan Eddy	<u>Download Full Report</u> (DTCs)	USD \$270
2021-09-18 (LMC-US-01247)	046550966	2017 Mercedes-Benz E-Class Sedan WDDZF4KB6HA041014	Erik Rank	<u>Download Full Report</u>	USD \$270
2021-09-20 (LMC-US-01249)	046784053	2015 Nissan Versa 3N1CN7APXFL805327	Ed Lemke	<u>Download Full Report</u> (Accident)	USD \$270
2021-09-20 (LMC-US-01252)	046493085	2013 Ford Edge 2FMDK3JCXDBC33633	Kevin Sellers	<u>Download Full Report</u> (FF Speed, DTCs)	USD \$270
2021-09-20 (LMC-US-01255)	046438324	2018 Nissan Altima 1N4AL3AP7JC271717	Paul Miceli	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-20 (LMC-US-01258)	046605890	2018 Honda Accord 1HGCV1F12JA171141	Jon Rousseve	<u>Download Full Report</u> (Delta-V)	USD \$270
2021-09-20 (LMC-US-01265)	046850904	2010 Cadillac SRX 3GYFNAEY9A5559180	Dan Eddy	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-20 (SA-US-00167)	AU-0000000-649546	2013 Ford F-150 1FTVX1CT7DKF00034	Dwayne Chenault	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-20 (SA-US-00170)	AU-0000000-650911	2013 Ford F-150 1FTMF1CM4DKD77302	PJ Thagard	<u>Download Full Report</u> (DTCs)	USD \$270
2021-09-21 (LMC-US-01268)	AB505-475340-01	2019 Ford Transit 1FTYR3XM5KKA82706	Paul Miceli	<u>Download Full Report</u> (DTCs)	USD \$270
2021-09-21 (LMC-US-01271)	046659844	2018 Toyota Camry 4T1B61HK4JU156311	Terry O'Brien	<u>Download Full Report</u> (Delta-V)	USD \$270

2021-09-21 (SA-US-00173)	AU-0000000-646949	2020 Hyundai Venue KMHRB8A38LU035452	Chachi Woods	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-09-22 (LMC-US-01274)	046623776	2019 Hyundai Kona KM8K1CAA7KU366804	Michelle Petrillo	<u>Download Full Report</u>	USD \$270
2021-09-22 (LMC-US-01277)	046623776	2020 Kia Optima 5XXGT4L34LG386167	Michelle Petrillo	<u>Download Full Report</u>	USD \$270
2021-09-22 (LMC-US-01280)	046718110	2016 Scion iM JTNKARJE7GJ506946	David Eismont	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-09-22 (LMC-US-01283)	046796728	2013 Mazda CX-9 JM3TB3CV7D0409030	Steve Spilka	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-22 (LMC-US-01286)	046863910	2018 Audi Q7 WA1LAAF70JD046131	Paul Miceli	<u>Download Full Report</u> (DTCs)	USD \$270
2021-09-22 (LMC-US-01292)	046854937	2013 BMW 335i WBA3A9G5XDNP37907	Paul Miceli	<u>Download Full Report</u> (DTCs)	USD \$270
2021-09-22 (LMC-US-01289)	105743600	2016 Hyundai Elantra KMHD35LH1GU303651	Amy Slater	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-23 (LMC-US-01296)	046436098	2013 Ford Focus 1FADP3F28DL242018	Bill Schuster	<u>Download Full Report</u> (DTCs)	USD \$45
2021-09-23 (LMC-US-01300)	046504320	2013 Dodge Dart 1C3CDFBHXDD200698	Jim White	<u>Download Full Report</u>	USD \$270
2021-09-23 (LMC-US-01298)	046912463	2006 Dodge Magnum 2D4GV57276H522894	Michael Romano	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-24 (LMC-US-01305)	041906414	2011 Chrysler 300 2C3CA5CG5BH536042	Mark Lorenz	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270

2021-09-24 (SA-US-00175)	AU-0000000-653277	2008 Dodge Ram 3500 3D7MX39A88G135119	Gary Alderson	Download Full Report	USD \$270
2021-09-27 (LMC-US-01308)	046546170	2011 Chevrolet Silverado 3GCPKSE30BG265703	Jim White	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-27 (SA-US-00178)	AU-0000000-653213	2006 Chevrolet Silverado 1GCHK23DX6F181086	David Eismont	Download Full Report (DTCs)	USD \$270
2021-09-27 (LMC-US-01312)	046663693	2016 Toyota Avalon 4T1BK1EB9GU239936	Ryan Khalaf	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-09-28 (RI-00025)	9Z4Z37TX	2010 Ford Mustang 1ZVBP8ANXA5142967	Larry Wheeler	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-28 (LMC-US-01315)	046827189	2017 Chevrolet Cruze 1G1BC5SM9H7161150	Mark Herrmann	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-28 (LMC-US-01317)	046749554	2013 Ford Explorer 1FM5K8GT5DGC76763	Paul Miceli	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-28 (AMI-00024)	60004158068-01	2012 Jeep Grand Cherokee 1C4RJFBT9CC251259	Amy Slater	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-09-28 (AMI-00027)	60004110465-04	2018 Kia Forte 3KPFL4A77JE248002	Adam Levy	Download Full Report (Delta-V, EDR Speed, DTCs, Junk/Salv./Ins.)	USD \$270
2021-09-28 (LMC-US-01320)	043414093	2007 Lexus ES JTHBJ46G072082990	Amy Slater	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-09-28 (LMC-US-01323)	044485908	2011 Toyota Camry 4T4BF3EKXBR115026	PJ Thagard	Download Full Report (Delta-V, EDR Speed)	USD \$270

2021-09-28 (SA-US-00182)	AU-0000000-648173	2006 Honda Ridgeline 2HJYK16526H524515	Mike Reid	Download Full Report (DTCs, Theft)	USD \$45
2021-09-29 (LMC-US-01328)	046885514	2014 Dodge Charger 2C3CDXCT3EH148988	Kevin Sellers	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-29 (LMC-US-01330)	045778212	2016 Ford F-150 1FTEW1CG3GKE82397	Daniel Duchene	Download Full Report (FF Speed, DTCs)	USD \$270
2021-09-30 (LMC-US-01333)	046969886	2019 Ford F-150 1FTEX1CP6KKD87256	Joseph Carmichael	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
2021-09-30 (LMC-US-01336)	046057772	2016 Kia Forte KNAFZ4A86G5447731	Robin Hansen	Download Full Report (DTCs)	USD \$270
2021-09-30 (LMC-US-01339)	046826409	2018 Dodge Challenger 2C3CDZAG3JH172025	Michael Hayter	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270
TOTAL					USD \$22,770.00



REPORT SUMMARY

This section provides an overview of the predictive analytics used for the estimation of claim severity, exposure, and fraud risk for the most recent crash or event sequence.



Occupant Injuries

Seat Belt Use:

Number of Unbuckled Drivers: 0

Number of Unbuckled Front Passengers: 0

Probability of Injury given detected Collision Severity:

Total number of vehicles (having occupants) with more than 20% probability for initial whiplash: 69

Total number of vehicles (having occupants) with more than 20% probability for long-term whiplash: 41

Total number of vehicles (having occupants) with more than 20% probability for serious injury: 39

**The above statistical categories for injury severity are not mutually exclusive. One vehicle's occupants could be counted in multiple categories; for example, in both the initial symptoms and long-term injury risk.*



Driver Behavior

Number of Cases with Excessive Speeding:

91 - 100 mph: 0

100 mph +: 0

Number of Potential Distracted Drivers: 3

Number of Aggressive Acceleration Events: 1



FNOL Flags

Number of exceptions and discrepancies:

Potential Staged Collisions: 1

Reported Number of Occupants: N/A

Reported Vehicle Speed or Maneuver: N/A

Diagnostic validation (VIN, actual Airbag Deployment): N/A

Physical Damages (Areas or Date of Loss): N/A

Total Loss Assessment: N/A



Recommended Action

Moral Hazards:

Refer excessive speeding moral hazards to underwriting.

Number of cases where speed flagged above 90 mph: 0.

Contributory Negligence (Loss Reductions):

Review contributory negligence of unbuckled front passengers in 3rd Party Liability claims. Number of Cases: 0.



FLAGS / LOSS INDICATORS

This section lists flags for further investigation based on known anti-fraud indicators and/or inconsistencies with reported circumstances.

Drive Down: 1 (2.2% of records with crash data)

Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.

Vehicle: 2016 Ford Transit Connect

Date: 2021-09-01

Total Flags: 2

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No Avoidance Maneuver: 1 (2.2% of records with crash data)

No driver input for either brake or steering maneuver within the 2 seconds prior to impact.

Vehicle: 2016 Scion iM

Date: 2021-09-22

Total Flags: 4

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Possible Distracted Driver: 3 (6.5% of records with crash data)

In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.

Vehicle: 2016 Ford Transit Connect

Date: 2021-09-01

Total Flags: 2

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Vehicle: 2019 Kia Sorento

Date: 2021-09-16

Total Flags: 3

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Vehicle: 2019 Nissan Sentra

Date: 2021-09-03

Total Flags: 2

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No Pre-Impact Speed Reduction: 1 (2.2% of records with crash data)

Brake is only applied lightly with no meaningful reduction in speed.

Vehicle: 2013 Ford Explorer

Date: 2021-09-28

Total Flags: 3

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Steered-To Sideswipe: 2 (4.3% of records with crash data)

Driver steers either left or right, causing an impact on the steered-to side.

Vehicle: 2019 Kia Sorento

Date: 2021-09-16

Total Flags: 3

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Vehicle: 2019 Ford F-150

Date: 2021-09-30

Total Flags: 2

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Swoop & Squat: 0 (0.0% of records with crash data)

Driver steers to make a lane change and quickly applies brakes.

Panic Stop: 0 (0.0% of records with crash data)

Rear-end collision where driver brakes just prior to impact.

Possible Non-Recent Event: 18 (39.1% of records with crash data)

Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval.
Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).

Vehicle: 2016 Hyundai Elantra

Date: 2021-09-22

Total Flags: 2

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Vehicle: 2018 Ford F-150

Date: 2021-09-15

Total Flags: 1

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Full
Report](#)

Vehicle: 2016 Scion iM

Date: 2021-09-22

Total Flags: 4

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Full
Report](#)

Vehicle: 2012 Chevrolet Silverado

Date: 2021-09-03

Total Flags: 2

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Report](#)

Vehicle: 2011 Chrysler 300	Date: 2021-09-24	Total Flags: 5	Download Full Report
Vehicle: 2013 Ford F-150	Date: 2021-09-20	Total Flags: 3	Download Full Report
Vehicle: 2012 Jeep Grand Cherokee	Date: 2021-09-28	Total Flags: 2	Download Full Report
Vehicle: 2018 Lexus NX	Date: 2021-09-03	Total Flags: 2	Download Full Report
Vehicle: 2016 Toyota Avalon	Date: 2021-09-27	Total Flags: 2	Download Full Report
Vehicle: 2015 Nissan Altima	Date: 2021-09-15	Total Flags: 2	Download Full Report
Vehicle: 2011 Chevrolet Silverado	Date: 2021-09-27	Total Flags: 3	Download Full Report
Vehicle: 2017 Chevrolet Cruze	Date: 2021-09-28	Total Flags: 3	Download Full Report
Vehicle: 2010 Cadillac SRX	Date: 2021-09-20	Total Flags: 2	Download Full Report
Vehicle: 2017 Ford Focus	Date: 2021-09-17	Total Flags: 2	Download Full Report
Vehicle: 2018 Dodge Challenger	Date: 2021-09-30	Total Flags: 1	Download Full Report
Vehicle: 2017 Nissan Altima	Date: 2021-09-10	Total Flags: 3	Download Full Report
Vehicle: 2021 Toyota RAV4	Date: 2021-09-01	Total Flags: 2	Download Full Report
Vehicle: 2019 Hyundai Kona	Date: 2021-09-08	Total Flags: 2	Download Full Report

Possible Intentional Damage: 0 (0.0% of records with crash data)

Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.

Pre-Damaged Vehicle: 10 (21.7% of records with crash data)

Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.

Vehicle: 2012 Ford Focus	Date: 2021-09-02	Total Flags: 3	Download Full Report
Vehicle: 2016 Scion iM	Date: 2021-09-22	Total Flags: 4	Download Full Report
Vehicle: 2011 Chrysler 300	Date: 2021-09-24	Total Flags: 5	Download Full Report
Vehicle: 2011 Toyota Camry	Date: 2021-09-28	Total Flags: 2	Download Full Report
Vehicle: 2017 Chevrolet Cruze	Date: 2021-09-28	Total Flags: 3	Download Full Report
Vehicle: 2013 Mazda CX-9	Date: 2021-09-22	Total Flags: 1	Download Full Report
Vehicle: 2017 Nissan Altima	Date: 2021-09-10	Total Flags: 3	Download Full Report
Vehicle: 2007 Lexus ES	Date: 2021-09-28	Total Flags: 2	Download Full Report
Vehicle: 2013 Chrysler 200	Date: 2021-09-08	Total Flags: 3	Download Full Report
Vehicle: 2009 Toyota Camry	Date: 2021-09-07	Total Flags: 2	Download Full Report

Unbuckled Driver: 0 (0.0% of records with crash data)

Driver not wearing seat belt at the time of crash data recording.

Unbuckled Passenger: 0 (0.0% of records with crash data)

Front passenger not wearing seat belt at the time of crash data recording.

Emissions Test Failure: 19 (41.3% of records with crash data)

Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).

Vehicle: 2012 Ford Focus	Date: 2021-09-02	Total Flags: 3	Download Full Report
Vehicle: 2006 Dodge Magnum	Date: 2021-09-23	Total Flags: 1	Download Full Report
Vehicle: 2013 BMW 335i	Date: 2021-09-22	Total Flags: 1	Download Full Report
Vehicle: 2011 Chrysler 300	Date: 2021-09-24	Total Flags: 5	Download Full Report
Vehicle: 2013 Ford F-150	Date: 2021-09-20	Total Flags: 3	Download Full Report
Vehicle: 2021 Toyota Tundra	Date: 2021-09-17	Total Flags: 1	Download Full Report
Vehicle: 2011 Chevrolet Silverado	Date: 2021-09-27	Total Flags: 3	Download Full Report
Vehicle: 2017 Chevrolet Cruze	Date: 2021-09-28	Total Flags: 3	Download Full Report
Vehicle: 2013 Ford Edge	Date: 2021-09-20	Total Flags: 1	Download Full Report
Vehicle: 2016 Ford F-150	Date: 2021-09-29	Total Flags: 1	Download Full Report
Vehicle: 2010 Cadillac SRX	Date: 2021-09-20	Total Flags: 2	Download Full Report
Vehicle: 2006 Chevrolet Silverado	Date: 2021-09-27	Total Flags: 1	Download Full Report
Vehicle: 2007 Buick Rainier	Date: 2021-09-02	Total Flags: 1	Download Full Report
Vehicle: 2013 Ford Explorer	Date: 2021-09-28	Total Flags: 3	Download Full Report
Vehicle: 2011 RAM 1500	Date: 2021-09-17	Total Flags: 1	Download Full Report
Vehicle: 2019 Chevrolet Malibu	Date: 2021-09-15	Total Flags: 1	Download Full Report

Vehicle: 2014 Dodge Charger	Date: 2021-09-29	Total Flags: 1	Download Full Report
Vehicle: 2017 Dodge Journey	Date: 2021-09-03	Total Flags: 1	Download Full Report
Vehicle: 2013 Chrysler 200	Date: 2021-09-08	Total Flags: 3	Download Full Report
Low Velocity Impact: 33 (71.7% of records with crash data) An impact in which the mean acceleration is below 3.0 g.			
Vehicle: 2018 Nissan Altima	Date: 2021-09-20	Total Flags: 1	Download Full Report
Vehicle: 2016 Hyundai Elantra	Date: 2021-09-22	Total Flags: 2	Download Full Report
Vehicle: 2012 Ford Focus	Date: 2021-09-02	Total Flags: 3	Download Full Report
Vehicle: 2016 Scion iM	Date: 2021-09-22	Total Flags: 4	Download Full Report
Vehicle: 2012 Chevrolet Silverado	Date: 2021-09-03	Total Flags: 2	Download Full Report
Vehicle: 2011 Chrysler 300	Date: 2021-09-24	Total Flags: 5	Download Full Report
Vehicle: 2013 Ford F-150	Date: 2021-09-20	Total Flags: 3	Download Full Report
Vehicle: 2012 Jeep Grand Cherokee	Date: 2021-09-28	Total Flags: 2	Download Full Report
Vehicle: 2018 Lexus NX	Date: 2021-09-03	Total Flags: 2	Download Full Report
Vehicle: 2016 Toyota Avalon	Date: 2021-09-27	Total Flags: 2	Download Full Report
Vehicle: 2015 Nissan Altima	Date: 2021-09-15	Total Flags: 2	Download Full Report
Vehicle: 2011 Toyota Camry	Date: 2021-09-28	Total Flags: 2	Download Full Report

Vehicle: 2015 Nissan Sentra	Date: 2021-09-08	Total Flags: 1	Download Full Report
Vehicle: 2011 Chevrolet Silverado	Date: 2021-09-27	Total Flags: 3	Download Full Report
Vehicle: 2018 Honda Accord	Date: 2021-09-20	Total Flags: 1	Download Full Report
Vehicle: 2018 Chevrolet Silverado	Date: 2021-09-15	Total Flags: 1	Download Full Report
Vehicle: 2019 Kia Sorento	Date: 2021-09-16	Total Flags: 3	Download Full Report
Vehicle: 2017 Ford Focus	Date: 2021-09-17	Total Flags: 2	Download Full Report
Vehicle: 2019 Nissan Sentra	Date: 2021-09-03	Total Flags: 2	Download Full Report
Vehicle: 2018 Toyota Camry	Date: 2021-09-21	Total Flags: 1	Download Full Report
Vehicle: 2017 Nissan Altima	Date: 2021-09-10	Total Flags: 3	Download Full Report
Vehicle: 2019 Hyundai Elantra	Date: 2021-09-08	Total Flags: 1	Download Full Report
Vehicle: 2003 Ford Mustang	Date: 2021-09-16	Total Flags: 1	Download Full Report
Vehicle: 2020 Dodge Charger	Date: 2021-09-16	Total Flags: 1	Download Full Report
Vehicle: 2017 RAM 3500	Date: 2021-09-17	Total Flags: 1	Download Full Report
Vehicle: 2013 Ford Explorer	Date: 2021-09-28	Total Flags: 3	Download Full Report
Vehicle: 2021 Toyota RAV4	Date: 2021-09-01	Total Flags: 2	Download Full Report
Vehicle: 2007 Lexus ES	Date: 2021-09-28	Total Flags: 2	Download Full Report

Vehicle: 2019 Hyundai Kona	Date: 2021-09-08	Total Flags: 2	Download Full Report
Vehicle: 2013 Chrysler 200	Date: 2021-09-08	Total Flags: 3	Download Full Report
Vehicle: 2018 Kia Forte	Date: 2021-09-28	Total Flags: 1	Download Full Report
Vehicle: 2019 Ford F-150	Date: 2021-09-30	Total Flags: 2	Download Full Report
Vehicle: 2009 Toyota Camry	Date: 2021-09-07	Total Flags: 2	Download Full Report

Odometer Rollback: 1 (2.2% of records with crash data)

Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.

Vehicle: 2011 Chrysler 300	Date: 2021-09-24	Total Flags: 5	Download Full Report
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STATISTICAL ANALYSIS

This section lists statistics based on an analysis of vehicle reports associated with the company.

General Statistics

General statistics related to reports completed during the reporting period.

Description	Statistics
Total number of vehicle scans during period	86
Total number of supported vehicles	84
Total number of supported vehicle reports with crash data	46
Total number of supported vehicle reports with no event data	38
Total number of vehicle reports with excess speed detected	N/A
Total number of vehicle reports with top speed information	45
Total number of loss indicators	70
Total number with DriveClean passed v.s. failed	68:20
Total number of DTCs found	44
Total number of unique DTCs	40

Total number of vehicles with more than 20% probability for initial whiplash	69
Total number of vehicles with more than 20% probability for long-term whiplash	41
Total number of vehicles with more than 20% probability for serious injury	39

Statistics on Maximum Travel Speed

This section lists statistics on maximum travel speed recorded in the most recent crash event(s). The maximum travel speed is extracted from pre-crash data of up to 5 seconds prior to impact. Therefore, the travel speed is not necessarily equivalent to the speed at impact.

Speed Range	Number of Cases
61 - 70 mph	0
71 - 80 mph	1
81 - 90 mph	0
91 - 100 mph	0
100 mph +	0

Statistics on Unbuckled Occupant Injury Risk

This section lists statistics on injury risk for unbuckled occupants.

Probability of Long-term WAD	Number of Cases
1 - 10%	0
11 - 20%	0
21 - 30%	0
31 - 40%	0
41 - 50%	0
51 - 60%	0
61 - 70%	0
71 - 80%	0
81 - 90%	0
91%+	0

Probability of Serious Injury	Number of Cases
1 - 10%	0
11 - 20%	0
21 - 30%	0
31 - 40%	0
41 - 50%	0
51%+	0

Statistics on Flags / Loss Indicators

Statistics categorized by flags / loss indicators.

Indicator	Description	Number of Cases
Drive Down	Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.	1
No Avoidance Maneuver	No driver input for either brake or steering maneuver within the 2 seconds prior to impact.	1
Possible Distracted Driver	In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.	3
No Pre-Impact Speed Reduction	Brake is only applied lightly with no meaningful reduction in speed.	1
Steered-To Sideswipe	Driver steers either left or right, causing an impact on the steered-to side.	2
Swoop & Squat	Driver steers to make a lane change and quickly applies brakes.	0
Panic Stop	Rear-end collision where driver brakes just prior to impact.	0
Possible Non-Recent Event	Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval. Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).	18
Possible Intentional Damage	Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.	0
Pre-Damaged Vehicle	Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.	10
Unbuckled Driver	Driver not wearing seat belt at the time of crash data recording.	0
Unbuckled Passenger	Front passenger not wearing seat belt at the time of crash data recording.	0
Emissions Test Failure	Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).	19
Low Velocity Impact	An impact in which the mean acceleration is below 3.0 g.	33
Odometer Rollback	Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.	1

Statistics by Model Year

Statistics categorized by vehicle model year.

Year	Cases	Total Flags	Distracted Drivers	Speeding Cases	Short-term WAD > 20%	Long-term WAD > 20%	Serious Injury > 20%
2021	4	2	0	1	4	2	2
2020	8	1	0	0	7	5	5
2019	9	10	2	0	8	4	4
2018	15	9	0	0	13	7	7

2017	8	8	0	0	5	4	4
2016	7	10	1	0	5	3	3
2015	4	3	0	0	4	2	2
2014	1	0	0	0	1	1	0
2013	9	7	0	0	9	5	4
2012	3	6	0	0	1	0	0
2011	4	8	0	0	2	1	1
2010	2	1	0	0	2	0	0
2009	2	2	0	0	2	1	1
2008	1	0	0	0	1	1	1
2007	2	2	0	0	1	1	1
2006	4	0	0	1	4	4	4
2003	1	1	0	0	0	0	0

Statistics by Vehicle Make

Statistics categorized by vehicle make.

Make	# Cases	Front Delta-V Range	Rear Delta-V Range	Side Delta-V Range
Buick	0	N/A	N/A	N/A
Mazda	0	16.2 to 16.2 mph	N/A	16.2 to 16.2 mph
Ford	0	0.5 to 13.8 mph	6.6 to 6.6 mph	0.4 to 5.3 mph
Chevrolet	0	5.0 to 10.6 mph	6.2 to 8.7 mph	0.6 to 5.0 mph
Chrysler	0	5.6 to 14.3 mph	6.2 to 6.2 mph	0.6 to 2.5 mph
Acura	0	N/A	N/A	N/A
Toyota	0	5.0 to 14.1 mph	4.7 to 4.7 mph	0.4 to 8.0 mph
Jeep	0	9.9 to 9.9 mph	N/A	0.6 to 0.6 mph
BMW	0	N/A	N/A	N/A
Honda	0	N/A	6.8 to 6.8 mph	0.6 to 0.6 mph
Lexus	0	N/A	4.5 to 4.5 mph	0.5 to 0.9 mph
Scion	0	N/A	N/A	5.1 to 5.1 mph
Subaru	0	N/A	N/A	N/A
Dodge	0	3.7 to 6.2 mph	18.6 to 18.6 mph	1.2 to 5.0 mph
Kia	0	1.9 to 10.6 mph	N/A	3.1 to 4.3 mph
GMC	0	N/A	N/A	N/A
Mercedes-Benz	0	N/A	N/A	N/A
Cadillac	0	9.3 to 9.3 mph	N/A	N/A

Hyundai	0	6.8 to 13.0 mph	N/A	0.6 to 7.5 mph
Nissan	0	1.2 to 16.8 mph	4.3 to 14.3 mph	0.6 to 3.1 mph
RAM	0	5.6 to 5.6 mph	N/A	0.6 to 0.6 mph
Audi	0	N/A	N/A	N/A

Event Data Disclaimer

It is important to note that if a vehicle was spinning or rolling surrounding the collision, then the report's speed measurements would not accurately reflect the actual speed of the vehicle during/after it lost control; the speed measurement is typically based on the wheel speed sensor. Signs of this type of anomaly would be rapid changes in speed between the brief timing intervals. The reported speed may be an average of the four wheels; thus could also be skewed by spinning wheels. In combination with scene evidence, an expert could assess vehicle speed by analyzing the data via accident reconstruction and engineering analysis.

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Injury Risk / Biomechanical Assessment Disclaimer

The estimated injury risks are calculated based on the recorded crash pulse, relative energy changes, known vehicle characteristics in standardized and real-world crashes, published databases, and recognized studies. The provided information can be used as a guide in settlement decisions but cannot be used to definitively prove the existence or non-presence of an injury. In cases with a very low risk of whiplash or other injury, claims can be identified for further investigation. Conversely, for cases with a high risk of whiplash or other injury, the claim can be expedited, since early treatment is often effective in reducing the long term prognosis.

Delta-V (Change in Velocity) has traditionally been used to correlate crash severity with risk of occupant injury (Augenstein et al., 2003; Bahouth et al., 2004; Sunnevång et al., 2009; Kononen et al., 2011). Injury tolerance and risk for various injury types based on real-world crashes with recorded crash data have been established (Gabauer and Gabler, 2006; Gabauer and Gabler, 2008; Kullgren and Krafft, 2008; Ydenius, 2010). Large-scale retrospective studies have also examined the relationship between minor severity crashes and the risk of occupant whiplash complaints, including studies in the U.S. (Tencer et al., 2001), Germany (Eis et al., 2005; Hell et al., 2002) and Sweden (Krafft et al., 2005). Injury risk studies consider the following risk factors: Crash configuration (front, side, rear, rollover), Delta-V = Change in velocity, Vehicle mass (size, weight), Vehicle stiffness, Vehicle geometry and engagement, Restraint system and its adjustment, Occupant seated position, Occupant profile (age, gender, previous injury), Number of WAD symptoms, and Psychological Distress. Structural damage and known whiplash thresholds overlap, indicating structural damage and repair cost are a poor predictor of minor injury threshold. Damage can also vary widely by vehicle model and impact configuration.

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From: service=collisionsciences.ca@mail.collisionsciences.ca [service=collisionsciences.ca@mail.collisionsciences.ca]
on behalf of Collision Sciences <service@collisionsciences.ca> [service@collisionsciences.ca]
Sent: 9/20/2021 3:01:43 PM
To: Brian Hsu [bhsu@collisionsciences.ca]
Subject: ALERT - Honda Cable 825 Module Scanned

CrashScan

Accident Detector

Honda Cable 825 Module Scanned

This vehicle uses Honda cable 825. Check data accuracy with CDR replay. Check if any new information is available.

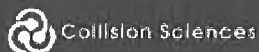
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Vehicle
2018 Honda Accord

VIN
1HGCV1F12JA171141

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Sent: 12/22/2020 9:35:54 PM
To: Brian Hsu [bhsu@collisionsciences.ca]
Subject: ALERT - Undecoded Subaru Vehicle Model Scanned

CrashScan

Accident Detector

Undecoded Subaru Vehicle Model Scanned

This is a Subaru that uses cable 614 or 616. Use CDR replay to decode information. The report has been placed under review.

[View Report](#)

Vehicle
2021 Subaru Crosstrek

VIN
JF2GTAPC9M8252690

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Collision Sciences **MANAGEMENT REPORT**

EXPOSURE, RISK & DECISION SUPPORT

Company: StreetDelivery

Reporting Period:

2021-10-01 to 2021-10-31

Generated: 2021-11-01 17:17:40 (UTC)



LIST OF PURCHASED REPORTS

This section shows the list of vehicle reports purchased during the reporting period.

Report Info	Claim Number	Vehicle	Investigator	Links (Tags)	Fee
2021-10-01 (LMC-US-01342)	046963659	2011 Toyota Tacoma 3TMLU4EN0BM071325	Michelle Petrillo	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-10-01 (LMC-US-01349)	045724937	2016 Toyota Camry 4T1BF1FK5GU610657	Chachi Woods	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-10-04 (LMC-US-01353)	046707428	2008 Pontiac G6 1G2ZF57B784304803	Jim Moran	Download Full Report	USD \$270
2021-10-04 (SA-US-00185)	AU-0000000-646332	2019 Nissan NV200 3N6CM0KNXKK706508	Joseph Quattrocchi	Download Full Report (DTCs)	USD \$270
2021-10-04 (LMC-US-01360)	046248270	2018 Toyota Avalon 4T1BK1EB0JU273674	Mark Herrmann	Download Full Report	USD \$270
2021-10-04 (LMC-US-01363)	046572757	2016 Chevrolet Cruze 1G1PE5SB3G7116427	Jim Moran	Download Full Report (Delta-V, EDR Speed, FF Speed, DTCs, Junk/Salv./Ins., Title Issue)	USD \$270
2021-10-05 (LMC-US-01366)	046742918	2013 Ford Taurus 1FAHP2F85DG112402	Kevin Sellers	Download Full Report (Delta-V, EDR Speed, FF Speed, DTCs)	USD \$270

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2021-10-05 (LMC-US-01369)	047003346	2015 Infiniti Q50 JN1BV7AR8FM414387	Bob Weidman	<u>Download Full Report</u> (Delta-V, DTCs, Junk/Salv./Ins., Title Issue)	USD \$270
2021-10-06 (SA-US-00188)	AU-0000000-655514	2018 Chevrolet Tahoe 1GN5CCKC8JR335763	Michael Romano	<u>Download Full Report</u>	USD \$270
2021-10-06 (AMI-00030)	60004157397-01	2013 Ford Explorer 1FM5K7D8XDGB61067	Bob Weidman	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-06 (LMC-US-01372)	041072573	2012 Toyota Corolla 2T1BU4EE2CC875020	Rich Clarke	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-06 (LMC-US-01375)	046152629	2015 Audi S3 WAUBFGFF8F1037518	Ryan Khalaf	<u>Download Full Report</u> (Delta-V, EDR Speed, FF Speed, DTCs, Title Issue)	USD \$270
2021-10-07 (NM-00052)	405257-GM	2012 Chevrolet Silverado 1GCNKPEA2CZ287951	David Eismont	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-07 (LMC-US-01377)	046984579	2015 Subaru Forester JF2SJAHC2FH460718	Denise Littman	<u>Download Full Report</u>	USD \$270
2021-10-07 (LMC-US-01380)	047070537	2012 Ford Fusion 3FAHP0HA3CR161559	Rich Tenney	<u>Download Full Report</u> (DTCs)	USD \$270
2021-10-07 (SA-US-00191)	AU-0000000-652399	2018 Ford Transit 1FTYR2CM2JKB20570	Chachi Woods	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-07 (SA-US-00194)	AU-0000000-556670	2017 Ford F-350 1FT8W3BTXHEE82694	Jermol Phillips	<u>Download Full Report</u> (DTCs)	USD \$270
2021-10-08 (LMC-US-01382)	046998653	2014 Subaru XV CrossTrek JF2GPACC9E8307098	Steve Spilka	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs, Junk/Salv./Ins., Title Issue)	USD \$270

2021-10-08 (LMC-US-01384)	04706340502	2015 Dodge Durango 1C4RDJEG2FC194030	Denise Littman	Download Full Report	USD \$270
2021-10-08 (LMC-US-01387)	047037039	2013 Acura TL 19UUA8F21DA013640	Paul Miceli	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-10-08 (LMC-US-01390)	046553752	2021 Chevrolet Equinox 3GNAXUEV2ML310856	Denise Littman	Download Full Report (DTCs)	USD \$270
2021-10-08 (LMC-US-01392)	046145206	2020 Nissan 370Z JN1AZ4EHXLM822725	Todd Jandro	Download Full Report	USD \$270
2021-10-08 (LMC-US-01394)	AB949422084	2014 Dodge Grand Caravan 2C4RDGBG5ER249129	Mark Lorenz	Download Full Report (FF Speed, DTCs)	USD \$270
2021-10-11 (LMC-US-01402)	046870293	2012 Dodge Charger 2C3CDXBG3CH157790	Mike White	Download Full Report (DTCs)	USD \$270
2021-10-12 (LMC-US-01397)	046157524	2019 Chevrolet Traverse 1GNERFKW8KJ275023	Kevin Sellers	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-10-12 (SA-US-00197)	AU-0000000-655424	2021 Toyota Corolla JTDHPMAE6MJ155460	Joseph Quattrocchi	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-10-12 (NM-00055)	477164-GM	2018 Chevrolet Silverado 3GCUKREC3JG132590	Dave Orlovsky	Download Full Report (Delta-V, EDR Speed)	USD \$270
2021-10-12 (LMC-US-01405)	047124464	2015 BMW X5 5UXKR0C55F0K54879	Paul Miceli	Download Full Report	USD \$270
2021-10-12 (LMC-US-01408)	046006849	2020 Toyota Corolla 5YFEPRAE2LP066835	David Eismont	Download Full Report (Delta-V)	USD \$270
2021-10-12 (LMC-US-01413)	046854427	2015 Mazda 6 JM1GJ1U57F1220956	Bob Weidman	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$270

2021-10-13 (LMC-US-01417)	046998312	2015 Nissan Sentra 3N1AB7AP7FL655158	John Armenio	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-13 (LMC-US-01422)	046810434	2015 Mercedes-Benz C-Class Sedan 55SWF4KB9FU013790	Erik Rank	<u>Download Full Report</u>	USD \$270
2021-10-13 (LMC-US-01425)	046926612	2014 Toyota 4Runner JTEBU5JR5E5152398	Denise Littman	<u>Download Full Report</u>	USD \$270
2021-10-14 (LMC-US-01432)	047226117	2015 Honda Accord 1HGCR2F55FA235760	Jesse Bihop	<u>Download Full Report</u> (DTCs)	USD \$270
2021-10-14 (LMC-US-01438)	047069900	2016 GMC Acadia 1GKKRRKD9GJ132864	Ian Talton	<u>Download Full Report</u> (DTCs)	USD \$270
2021-10-14 (LMC-US-01435)	046858726	2015 Chevrolet Camaro 2G1FD3D3XF9270848	Rich Tenney	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-15 (LMC-US-01443)	046994934	2011 Toyota Sequoia 5TDJY5G10BS051751	Kevin Sellers	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-15 (SA-US-00199)	AU-0000000-653019	2019 RAM 1500 Classic 1C6RR6TT8KS656578	Gary Alderson	<u>Download Full Report</u>	USD \$270
2021-10-15 (LMC-US-01446)	046828324	2011 Chevrolet Silverado 3GCPCE02BG368723	John Guthrie	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-15 (LMC-US-01449)	047019927	2010 Chevrolet Malibu 1G1ZA5EB6AF272751	Amy Slater	<u>Download Full Report</u> (FF Speed, DTCs, Theft)	USD \$270
2021-10-15 (LMC-US-01452)	045353738	2012 Chevrolet Cruze 1G1PD5SH6C7252133	Chachi Woods	<u>Download Full Report</u>	USD \$270
2021-10-16 (LMC-US-01455)	046671398	2017 Toyota 4Runner JTEBU5JRXH5482610	Danny Worsham	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270

2021-10-18 (LMC-US-01458)	047034070	2017 Honda Accord 1HGCR2F55HA208898	Kevin Berger	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-18 (LMC-US-01460)	046934497	2021 Jeep Grand Cherokee 1C4RJFBG9MC508411	Denise Littman	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-19 (LMC-US-01466)	047201173	2013 Hyundai Elantra 5NPDH4AE2DH429919	Tony Rusin	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-19 (LMC-US-01468)	046626975	2013 Infiniti JX35 5N1AL0MM0DC306902	Mark Herrmann	<u>Download Full Report</u>	USD \$270
2021-10-19 (LMC-US-01471)	046880071	2013 Cadillac ATS 1G6AH5RX5D0127037	Ed Lemke	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-19 (LMC-US-01474)	047036416	2010 Buick LaCrosse 1G4GC5EG9AF217307	Dan Clemens	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-19 (LMC-US-01479)	045556403-09	2011 Cadillac SRX 3GYFNB9Y9BS611821	Joseph Carmichael	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-20 (LMC-US-01482)	047174473	2013 Buick LaCrosse 1G4GC5E34DF316196	Danny Worsham	<u>Download Full Report</u>	USD \$270
2021-10-20 (LMC-US-01485)	046132769	2020 GMC Terrain 3GKALTEV0LL175507	Mark Lorenz	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-21 (LMC-US-01488)	047213992	2018 Honda CR-V 2HKRW2H84JH657657	Paul Miceli	<u>Download Full Report</u> (DTCs)	USD \$270
2021-10-21 (LMC-US-01495)	046535263	2011 BMW 328i WBADW7C59BE545472	Paul Miceli	<u>Download Full Report</u> (FF Speed, DTCs)	USD \$45
2021-10-21 (LMC-US-01498)	046558647	2018 Honda Accord 1HGCV1F56JA073801	Ed Lemke	<u>Download Full Report</u>	USD \$270

2021-10-21 (SA-US-00202)	AU-0000000-652399	2016 Ford Transit 1FTYR2CG6GKB39898	Chachi Woods	<u>Download Full Report</u> (DTCs)	USD \$270
2021-10-21 (LMC-US-01501)	PP413281489	2015 Volkswagen Passat 1VWAS7A35FC094462	Kirk Hubbell	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs, Accident)	USD \$270
2021-10-22 (LMC-US-01504)	047190806	2014 Hyundai Santa Fe 5XYZDLB9EG178896	Michelle Petrillo	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-22 (LMC-US-01507)	046832972	2011 Chevrolet Silverado 1GCRKTE38BZ463900	Gary Walker	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-22 (LMC-US-01508)	047091274	2007 Saturn Vue 5GZCZ33D27S865438	Paul Miceli	<u>Download Full Report</u> (DTCs)	USD \$45
2021-10-23 (LMC-US-01511)	047085301	2013 Ford Explorer 1FM5K8B83DGB35421	Mike White	<u>Download Full Report</u> (Delta-V, EDR Speed, FF Speed, DTCs)	USD \$270
2021-10-25 (LMC-US-01514)	047255114	2011 Chevrolet Malibu 1G1ZC5E1XBF258340	Mike White	<u>Download Full Report</u>	USD \$270
2021-10-25 (SA-US-00205)	AU-0000000-655307	2019 Chevrolet Silverado 3GCUYDED2KG256684	John Guthrie	<u>Download Full Report</u>	USD \$270
2021-10-25 (LMC-US-01517)	046347613	2015 Honda Civic 19XFB2F58FE232896	Robin Hansen	<u>Download Full Report</u> (Delta-V, DTCs)	USD \$270
2021-10-25 (LMC-US-01520)	047294548	2016 Ford F-250 1FT7W2BT9GEA95848	Todd Jandro	<u>Download Full Report</u> (FF Speed, DTCs)	USD \$270
2021-10-26 (RI-00027)	V2DJMZSC	2002 Toyota Camry JTDBE32K520073426	Michael Romano	<u>Download Full Report</u> (Delta-V, Accident)	USD \$270
2021-10-26 (LMC-US-01523)	047202855	2018 Dodge Grand Caravan 2C4RDGBG6JR348715	Donald Goodman	<u>Download Full Report</u> (DTCs)	USD \$270

2021-10-26 (LMC-US-01525)	046500889	2015 Infiniti Q50 JN1BV7AR1FM417860	Michelle Petrillo	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-26 (LMC-US-01528)	046626975	2018 Chevrolet Traverse 1GNEVHKW1JJ276732	Mark Herrmann	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-26 (LMC-US-01532)	047110598	2021 Toyota Highlander 5TDBZRBH7MS089400	Kevin Sellers	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-26 (AMI-00034)	60004144659-03	2020 Toyota Camry 4T1C11BK9LU002370	Amy Slater	<u>Download Full</u> <u>Report</u>	USD \$270
2021-10-26 (AMI-00037)	60004197120-04	2016 Chevrolet Colorado 1GCHTCE31G1386446	Amy Slater	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-26 (LMC-US-01536)	046850208	2021 Toyota RAV4 2T3A1RFV3MW198325	Dan Eddy	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-27 (LMC-US-01538)	046984143	2016 BMW X5 5UXKR6C51G0J81336	Jim White	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-27 (LMC-US-01544)	047239084	2018 Honda Accord 1HGCV1F14JA123298	Denise Littman	<u>Download Full</u> <u>Report</u> (Delta-V, DTCs)	USD \$270
2021-10-27 (LMC-US-01541)	047322392	2016 Ford Fiesta 3FADP4BJ0GM104088	Dan Eddy	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-27 (SA-US-00208)	AU-0000000-649571	2017 Cadillac XTS 2G61M5S3XH9146133	Oscar Wallace	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-28 (FCI-US-00003)	21INA82700	2019 Chevrolet Impala 2G11Z5SA1K9144042	Kaiti Sullivan	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270

2021-10-28 (LMC-US-01547)	047022805	2010 Chevrolet HHR 3GNBABDB0AS552306	Dwayne Chenault	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs, Junk/Salv./Ins., Accident)	USD \$270
2021-10-29 (LMC-US-01551)	047190806	2013 Toyota RAV4 JTMRFRE4DD046489	Michelle Petrillo	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-29 (LMC-US-01554)	046838314	2021 Toyota Camry 4T1K61AKXMU566870	Luis Rodriguez	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-29 (LMC-US-01557)	045765324	2014 Honda Accord 1HGCR2F89EA140157	Dwayne Chenault	<u>Download Full Report</u> (DTCs)	USD \$270
2021-10-29 (LMC-US-01559)	047293174	2018 Dodge Charger 2C3CDXEJ5JH185174	Oscar Wallace	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs)	USD \$270
2021-10-29 (LMC-US-01562)	047347599	2019 Chevrolet Malibu 1G1ZD55T5KF156253	Dan Eddy	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs, Junk/Salv./Ins.)	USD \$270
2021-10-29 (LMC-US-01565)	AB 94942747	2007 Toyota Camry JTNBB46K473028648	Robin Hansen	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$270
2021-10-29 (SA-US-00211)	AU-0000000-662069	2016 Dodge Grand Caravan 2C4RDGBG2GR389593	Michael Hayter	<u>Download Full Report</u> (Delta-V, EDR Speed, FF Speed, DTCs)	USD \$270
2021-10-30 (LMC-US-01572)	047087362	2011 Chevrolet Silverado 1GCRKTE35BZ128903	Tony Rusin	<u>Download Full Report</u> (DTCs)	USD \$45
2021-10-31 (LMC-US-01575)	047151222	2019 Chevrolet Silverado 3GCUYEED4KG166295	Kirk Hubbell	<u>Download Full Report</u>	USD \$270
TOTAL					USD \$22,815.00



REPORT SUMMARY

This section provides an overview of the predictive analytics used for the estimation of claim severity, exposure, and fraud risk for the most recent crash or event sequence.



Occupant Injuries

Seat Belt Use:

Number of Unbuckled Drivers: 0

Number of Unbuckled Front Passengers: 0

Probability of Injury given detected Collision Severity:

Total number of vehicles (having occupants) with more than 20% probability for initial whiplash: 64

Total number of vehicles (having occupants) with more than 20% probability for long-term whiplash: 34

Total number of vehicles (having occupants) with more than 20% probability for serious injury: 33

**The above statistical categories for injury severity are not mutually exclusive. One vehicle's occupants could be counted in multiple categories; for example, in both the initial symptoms and long-term injury risk.*



Driver Behavior

Number of Cases with Excessive Speeding:

91 - 100 mph: 0

100 mph +: 0

Number of Potential Distracted Drivers: 5

Number of Aggressive Acceleration Events: 5



FNOL Flags

Number of exceptions and discrepancies:

Potential Staged Collisions: 5

Reported Number of Occupants: N/A

Reported Vehicle Speed or Maneuver: N/A

Diagnostic validation (VIN, actual Airbag Deployment): N/A

Physical Damages (Areas or Date of Loss): N/A

Total Loss Assessment: N/A



Recommended Action

Moral Hazards:

Refer excessive speeding moral hazards to underwriting.

Number of cases where speed flagged above 90 mph: 0.

Contributory Negligence (Loss Reductions):

Review contributory negligence of unbuckled front passengers in 3rd Party Liability claims. Number of Cases: 0.



FLAGS / LOSS INDICATORS

This section lists flags for further investigation based on known anti-fraud indicators and/or inconsistencies with reported circumstances.

Drive Down: 5 (9.6% of records with crash data)

Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.

Vehicle: 2014 Hyundai Santa Fe

Date: 2021-10-22

Total Flags: 3

[Download Full Report](#)

Vehicle: 2015 Nissan Sentra

Date: 2021-10-13

Total Flags: 4

[Download Full Report](#)

Vehicle: 2018 Ford Transit

Date: 2021-10-07

Total Flags: 5

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Vehicle: 2013 Acura TL

Date: 2021-10-08

Total Flags: 3

[Download Full Report](#)

Vehicle: 2016 Ford Fiesta

Date: 2021-10-27

Total Flags: 2

[Download Full Report](#)

No Avoidance Maneuver: 0 (0.0% of records with crash data)

No driver input for either brake or steering maneuver within the 2 seconds prior to impact.

Possible Distracted Driver: 5 (9.6% of records with crash data)

In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.

Vehicle: 2013 Ford Explorer

Date: 2021-10-23

Total Flags: 4

[Download Full Report](#)

Vehicle: 2015 Nissan Sentra

Date: 2021-10-13

Total Flags: 4

[Download Full Report](#)

Vehicle: 2018 Ford Transit

Date: 2021-10-07

Total Flags: 5

[Download Full Report](#)

Vehicle: 2015 Infiniti Q50

Date: 2021-10-05

Total Flags: 2

[Download Full Report](#)

Vehicle: 2015 Audi S3

Date: 2021-10-06

Total Flags: 3

[Download Full Report](#)

No Pre-Impact Speed Reduction: 0 (0.0% of records with crash data)

Brake is only applied lightly with no meaningful reduction in speed.

Steered-To Sideswipe: 0 (0.0% of records with crash data)

Driver steers either left or right, causing an impact on the steered-to side.

Swoop & Squat: 0 (0.0% of records with crash data)

Driver steers to make a lane change and quickly applies brakes.

Panic Stop: 0 (0.0% of records with crash data)

Rear-end collision where driver brakes just prior to impact.

Possible Non-Recent Event: 30 (57.7% of records with crash data)

Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval.
Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).

Vehicle: 2014 Hyundai Santa Fe	Date: 2021-10-22	Total Flags: 3	Download Full Report
Vehicle: 2021 Toyota RAV4	Date: 2021-10-26	Total Flags: 1	Download Full Report
Vehicle: 2021 Jeep Grand Cherokee	Date: 2021-10-18	Total Flags: 2	Download Full Report
Vehicle: 2013 Ford Explorer	Date: 2021-10-06	Total Flags: 2	Download Full Report
Vehicle: 2013 Ford Explorer	Date: 2021-10-23	Total Flags: 4	Download Full Report
Vehicle: 2017 Cadillac XTS	Date: 2021-10-27	Total Flags: 2	Download Full Report
Vehicle: 2021 Toyota Highlander	Date: 2021-10-26	Total Flags: 1	Download Full Report
Vehicle: 2016 Chevrolet Cruze	Date: 2021-10-04	Total Flags: 3	Download Full Report
Vehicle: 2015 Nissan Sentra	Date: 2021-10-13	Total Flags: 4	Download Full Report
Vehicle: 2013 Toyota RAV4	Date: 2021-10-29	Total Flags: 2	Download Full Report
Vehicle: 2018 Ford Transit	Date: 2021-10-07	Total Flags: 5	Download Full Report
Vehicle: 2021 Toyota Corolla	Date: 2021-10-12	Total Flags: 2	Download Full Report
Vehicle: 2015 Volkswagen Passat	Date: 2021-10-21	Total Flags: 2	Download Full Report

Vehicle: 2018 Chevrolet Traverse	Date: 2021-10-26	Total Flags: 2	Download Full Report
Vehicle: 2015 Mazda 6	Date: 2021-10-12	Total Flags: 2	Download Full Report
Vehicle: 2016 Toyota Camry	Date: 2021-10-01	Total Flags: 3	Download Full Report
Vehicle: 2019 Chevrolet Malibu	Date: 2021-10-29	Total Flags: 3	Download Full Report
Vehicle: 2012 Chevrolet Silverado	Date: 2021-10-07	Total Flags: 3	Download Full Report
Vehicle: 2014 Subaru XV CrossTrek	Date: 2021-10-08	Total Flags: 3	Download Full Report
Vehicle: 2010 Buick LaCrosse	Date: 2021-10-19	Total Flags: 2	Download Full Report
Vehicle: 2013 Acura TL	Date: 2021-10-08	Total Flags: 3	Download Full Report
Vehicle: 2012 Toyota Corolla	Date: 2021-10-06	Total Flags: 2	Download Full Report
Vehicle: 2013 Hyundai Elantra	Date: 2021-10-19	Total Flags: 3	Download Full Report
Vehicle: 2010 Chevrolet HHR	Date: 2021-10-28	Total Flags: 1	Download Full Report
Vehicle: 2015 Infiniti Q50	Date: 2021-10-26	Total Flags: 1	Download Full Report
Vehicle: 2017 Toyota 4Runner	Date: 2021-10-16	Total Flags: 2	Download Full Report
Vehicle: 2020 GMC Terrain	Date: 2021-10-20	Total Flags: 2	Download Full Report
Vehicle: 2013 Ford Taurus	Date: 2021-10-05	Total Flags: 4	Download Full Report
Vehicle: 2019 Chevrolet Traverse	Date: 2021-10-12	Total Flags: 1	Download Full Report

Vehicle: 2021 Toyota Camry

Date: 2021-10-29

Total Flags: 2

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Possible Intentional Damage: 0 (0.0% of records with crash data)

Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.

Pre-Damaged Vehicle: 8 (15.4% of records with crash data)

Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.

Vehicle: 2021 Jeep Grand Cherokee

Date: 2021-10-18

Total Flags: 2

[Download Full Report](#)

Vehicle: 2007 Toyota Camry

Date: 2021-10-29

Total Flags: 2

[Download Full Report](#)

Vehicle: 2015 Chevrolet Camaro

Date: 2021-10-14

Total Flags: 1

[Download Full Report](#)

Vehicle: 2018 Ford Transit

Date: 2021-10-07

Total Flags: 5

[Download Full Report](#)

Vehicle: 2021 Toyota Corolla

Date: 2021-10-12

Total Flags: 2

[Download Full Report](#)

Vehicle: 2016 Toyota Camry

Date: 2021-10-01

Total Flags: 3

[Download Full Report](#)

Vehicle: 2013 Ford Taurus

Date: 2021-10-05

Total Flags: 4

[Download Full Report](#)

Vehicle: 2021 Toyota Camry

Date: 2021-10-29

Total Flags: 2

[Download Full Report](#)

Unbuckled Driver: 0 (0.0% of records with crash data)

Driver not wearing seat belt at the time of crash data recording.

Unbuckled Passenger: 0 (0.0% of records with crash data)

Front passenger not wearing seat belt at the time of crash data recording.

Emissions Test Failure: 21 (40.4% of records with crash data)

Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).

Vehicle: 2013 Cadillac ATS	Date: 2021-10-19	Total Flags: 2	Download Full Report
Vehicle: 2016 Ford F-250	Date: 2021-10-25	Total Flags: 1	Download Full Report
Vehicle: 2013 Ford Explorer	Date: 2021-10-23	Total Flags: 4	Download Full Report
Vehicle: 2010 Chevrolet Malibu	Date: 2021-10-15	Total Flags: 1	Download Full Report
Vehicle: 2016 Ford Transit	Date: 2021-10-21	Total Flags: 1	Download Full Report
Vehicle: 2021 Chevrolet Equinox	Date: 2021-10-08	Total Flags: 1	Download Full Report
Vehicle: 2016 Chevrolet Colorado	Date: 2021-10-26	Total Flags: 1	Download Full Report
Vehicle: 2016 Chevrolet Cruze	Date: 2021-10-04	Total Flags: 3	Download Full Report
Vehicle: 2019 Chevrolet Impala	Date: 2021-10-28	Total Flags: 1	Download Full Report
Vehicle: 2017 Honda Accord	Date: 2021-10-18	Total Flags: 1	Download Full Report
Vehicle: 2014 Dodge Grand Caravan	Date: 2021-10-08	Total Flags: 1	Download Full Report
Vehicle: 2019 Chevrolet Malibu	Date: 2021-10-29	Total Flags: 3	Download Full Report
Vehicle: 2012 Chevrolet Silverado	Date: 2021-10-07	Total Flags: 3	Download Full Report
Vehicle: 2014 Subaru XV CrossTrek	Date: 2021-10-08	Total Flags: 3	Download Full Report
Vehicle: 2018 Dodge Charger	Date: 2021-10-29	Total Flags: 2	Download Full Report
Vehicle: 2013 Hyundai Elantra	Date: 2021-10-19	Total Flags: 3	Download Full Report

Vehicle: 2015 Audi S3	Date: 2021-10-06	Total Flags: 3	Download Full Report
Vehicle: 2016 Dodge Grand Caravan	Date: 2021-10-29	Total Flags: 1	Download Full Report
Vehicle: 2014 Honda Accord	Date: 2021-10-29	Total Flags: 1	Download Full Report
Vehicle: 2013 Ford Taurus	Date: 2021-10-05	Total Flags: 4	Download Full Report
Vehicle: 2012 Dodge Charger	Date: 2021-10-11	Total Flags: 1	Download Full Report
Low Velocity Impact: 35 (67.3% of records with crash data) An impact in which the mean acceleration is below 3.0 g.			
Vehicle: 2014 Hyundai Santa Fe	Date: 2021-10-22	Total Flags: 3	Download Full Report
Vehicle: 2011 Toyota Tacoma	Date: 2021-10-01	Total Flags: 1	Download Full Report
Vehicle: 2013 Cadillac ATS	Date: 2021-10-19	Total Flags: 2	Download Full Report
Vehicle: 2013 Ford Explorer	Date: 2021-10-06	Total Flags: 2	Download Full Report
Vehicle: 2013 Ford Explorer	Date: 2021-10-23	Total Flags: 4	Download Full Report
Vehicle: 2017 Cadillac XTS	Date: 2021-10-27	Total Flags: 2	Download Full Report
Vehicle: 2011 Toyota Sequoia	Date: 2021-10-15	Total Flags: 1	Download Full Report
Vehicle: 2007 Toyota Camry	Date: 2021-10-29	Total Flags: 2	Download Full Report
Vehicle: 2011 Chevrolet Silverado	Date: 2021-10-15	Total Flags: 1	Download Full Report
Vehicle: 2016 Chevrolet Cruze	Date: 2021-10-04	Total Flags: 3	Download Full Report

Vehicle: 2015 Nissan Sentra	Date: 2021-10-13	Total Flags: 4	Download Full Report
Vehicle: 2013 Toyota RAV4	Date: 2021-10-29	Total Flags: 2	Download Full Report
Vehicle: 2018 Ford Transit	Date: 2021-10-07	Total Flags: 5	Download Full Report
Vehicle: 2015 Volkswagen Passat	Date: 2021-10-21	Total Flags: 2	Download Full Report
Vehicle: 2018 Chevrolet Traverse	Date: 2021-10-26	Total Flags: 2	Download Full Report
Vehicle: 2015 Mazda 6	Date: 2021-10-12	Total Flags: 2	Download Full Report
Vehicle: 2011 Cadillac SRX	Date: 2021-10-19	Total Flags: 1	Download Full Report
Vehicle: 2016 Toyota Camry	Date: 2021-10-01	Total Flags: 3	Download Full Report
Vehicle: 2020 Toyota Corolla	Date: 2021-10-12	Total Flags: 1	Download Full Report
Vehicle: 2015 Infiniti Q50	Date: 2021-10-05	Total Flags: 2	Download Full Report
Vehicle: 2019 Chevrolet Malibu	Date: 2021-10-29	Total Flags: 3	Download Full Report
Vehicle: 2012 Chevrolet Silverado	Date: 2021-10-07	Total Flags: 3	Download Full Report
Vehicle: 2014 Subaru XV CrossTrek	Date: 2021-10-08	Total Flags: 3	Download Full Report
Vehicle: 2010 Buick LaCrosse	Date: 2021-10-19	Total Flags: 2	Download Full Report
Vehicle: 2013 Acura TL	Date: 2021-10-08	Total Flags: 3	Download Full Report
Vehicle: 2012 Toyota Corolla	Date: 2021-10-06	Total Flags: 2	Download Full Report

Vehicle: 2018 Dodge Charger	Date: 2021-10-29	Total Flags: 2	Download Full Report
Vehicle: 2013 Hyundai Elantra	Date: 2021-10-19	Total Flags: 3	Download Full Report
Vehicle: 2017 Toyota 4Runner	Date: 2021-10-16	Total Flags: 2	Download Full Report
Vehicle: 2015 Audi S3	Date: 2021-10-06	Total Flags: 3	Download Full Report
Vehicle: 2020 GMC Terrain	Date: 2021-10-20	Total Flags: 2	Download Full Report
Vehicle: 2002 Toyota Camry	Date: 2021-10-26	Total Flags: 1	Download Full Report
Vehicle: 2013 Ford Taurus	Date: 2021-10-05	Total Flags: 4	Download Full Report
Vehicle: 2016 Ford Fiesta	Date: 2021-10-27	Total Flags: 2	Download Full Report
Vehicle: 2016 BMW X5	Date: 2021-10-27	Total Flags: 1	Download Full Report

Odometer Rollback: 0 (0.0% of records with crash data)

Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.



STATISTICAL ANALYSIS

This section lists statistics based on an analysis of vehicle reports associated with the company.

General Statistics

General statistics related to reports completed during the reporting period.

Description	Statistics
Total number of vehicle scans during period	87
Total number of supported vehicles	84
Total number of supported vehicle reports with crash data	52

Total number of supported vehicle reports with no event data	32
Total number of vehicle reports with excess speed detected	N/A
Total number of vehicle reports with top speed information	51
Total number of loss indicators	83
Total number with DriveClean passed v.s. failed	66:24
Total number of DTCs found	48
Total number of unique DTCs	38
Total number of vehicles with more than 20% probability for initial whiplash	64
Total number of vehicles with more than 20% probability for long-term whiplash	34
Total number of vehicles with more than 20% probability for serious injury	33

Statistics on Maximum Travel Speed

This section lists statistics on maximum travel speed recorded in the most recent crash event(s). The maximum travel speed is extracted from pre-crash data of up to 5 seconds prior to impact. Therefore, the travel speed is not necessarily equivalent to the speed at impact.

Speed Range	Number of Cases
61 - 70 mph	4
71 - 80 mph	1
81 - 90 mph	2
91 - 100 mph	0
100 mph +	0

Statistics on Unbuckled Occupant Injury Risk

This section lists statistics on injury risk for unbuckled occupants.

Probability of Long-term WAD	Number of Cases
1 - 10%	0
11 - 20%	0
21 - 30%	0
31 - 40%	0
41 - 50%	0
51 - 60%	0
61 - 70%	0
71 - 80%	0
81 - 90%	0
91%+	0

Probability of Serious Injury	Number of Cases
-------------------------------	-----------------

1 - 10%	0
11 - 20%	0
21 - 30%	0
31 - 40%	0
41 - 50%	0
51%+	0

Statistics on Flags / Loss Indicators

Statistics categorized by flags / loss indicators.

Indicator	Description	Number of Cases
Drive Down	Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.	5
No Avoidance Maneuver	No driver input for either brake or steering maneuver within the 2 seconds prior to impact.	0
Possible Distracted Driver	In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.	5
No Pre-Impact Speed Reduction	Brake is only applied lightly with no meaningful reduction in speed.	0
Steered-To Sideswipe	Driver steers either left or right, causing an impact on the steered-to side.	0
Swoop & Squat	Driver steers to make a lane change and quickly applies brakes.	0
Panic Stop	Rear-end collision where driver brakes just prior to impact.	0
Possible Non-Recent Event	Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval. Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).	30
Possible Intentional Damage	Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.	0
Pre-Damaged Vehicle	Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.	8
Unbuckled Driver	Driver not wearing seat belt at the time of crash data recording.	0
Unbuckled Passenger	Front passenger not wearing seat belt at the time of crash data recording.	0
Emissions Test Failure	Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).	21
Low Velocity Impact	An impact in which the mean acceleration is below 3.0 g.	35
Odometer Rollback	Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.	0

Statistics by Model Year

Statistics categorized by vehicle model year.

Year	Cases	Total Flags	Distracted Drivers	Speeding Cases	Short-term WAD > 20%	Long-term WAD > 20%	Serious Injury > 20%
2021	6	8	0	0	2	1	1
2020	4	3	0	1	2	2	2
2019	7	3	0	0	7	4	4
2018	10	8	1	0	10	5	5
2017	4	4	0	0	4	1	1
2016	9	8	0	0	7	3	3
2015	13	14	3	1	11	6	5
2014	5	5	0	0	4	3	3
2013	9	16	1	0	5	2	2
2012	5	4	0	1	4	3	3
2011	6	4	0	0	4	2	2
2010	3	3	0	0	3	1	1
2008	1	0	0	0	1	1	1
2007	1	2	0	0	0	0	0
2002	1	1	0	0	0	0	0

Statistics by Vehicle Make

Statistics categorized by vehicle make.

Make	# Cases	Front Delta-V Range	Rear Delta-V Range	Side Delta-V Range
GMC	0	1.2 to 1.2 mph	N/A	N/A
Honda	0	9.3 to 11.8 mph	21.7 to 21.7 mph	0.6 to 5.6 mph
Infiniti	0	0.6 to 9.3 mph	N/A	0.6 to 0.6 mph
Pontiac	0	N/A	N/A	N/A
Nissan	0	7.5 to 7.5 mph	N/A	N/A
Jeep	0	2.5 to 5.6 mph	N/A	6.2 to 6.2 mph
Acura	0	1.2 to 1.2 mph	N/A	N/A
Hyundai	0	4.3 to 5.0 mph	N/A	2.5 to 2.5 mph
Chevrolet	0	0.6 to 30.4 mph	5.0 to 10.6 mph	0.6 to 5.6 mph
Subaru	0	8.1 to 8.1 mph	N/A	0.6 to 0.6 mph
Cadillac	0	2.5 to 16.8 mph	6.2 to 6.2 mph	0.6 to 5.6 mph
RAM	0	N/A	N/A	N/A

Ford	0	5.5 to 16.0 mph	N/A	0.3 to 4.4 mph
BMW	0	18.6 to 18.6 mph	N/A	5.0 to 5.0 mph
Volkswagen	0	5.6 to 5.6 mph	N/A	N/A
Toyota	0	0.5 to 6.0 mph	0.4 to 7.4 mph	0.2 to 7.8 mph
Buick	0	16.2 to 16.2 mph	N/A	12.4 to 12.4 mph
Mazda	0	0.6 to 4.3 mph	N/A	5.0 to 7.5 mph
Audi	0	10.6 to 10.6 mph	N/A	2.5 to 2.5 mph
Dodge	0	9.3 to 14.0 mph	N/A	2.5 to 8.7 mph
Mercedes-Benz	0	N/A	N/A	N/A

Event Data Disclaimer

It is important to note is that if a vehicle was spinning or rolling surrounding the collision, then the report's speed measurements would not accurately reflect the actual speed of the vehicle during/after it lost control; the speed measurement is typically based on the wheel speed sensor. Signs of this type of anomaly would be rapid changes in speed between the brief timing intervals. The reported speed may be an average of the four wheels; thus could also be skewed by spinning wheels. In combination with scene evidence, an expert could assess vehicle speed by analyzing the data via accident reconstruction and engineering analysis.

Users of the Collision Sciences service and reviewers of the reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Collision Sciences Inc. and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Collision Sciences Inc. expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the online services, evidence logistics, EDR data, EDR software or use thereof.

Injury Risk / Biomechanical Assessment Disclaimer

The estimated injury risks are calculated based on the recorded crash pulse, relative energy changes, known vehicle characteristics in standardized and real world crashes, published databases, and recognized studies. The provided information can be used as a guide in settlement decisions but cannot be used to definitively prove the existence or non-presence of an injury. In cases with a very low risk of whiplash or other injury, claims can be identified for further investigation. Conversely, for cases with a high risk of whiplash or other injury, the claim can be expedited, since early treatment is often effective in reducing the long term prognosis.

Delta-V (Change in Velocity) has traditionally been used to correlate crash severity with risk of occupant injury (Augenstein et al., 2003; Bahouth et al., 2004; Sunnevang et al., 2009; Kononen et al., 2011). Injury tolerance and risk for various injury types based on real world crashes with recorded crash data have been established (Gabaue and Gabler, 2006; Gabaue and Gabler, 2008; Kuilgren and Krafft, 2008; Ydenius, 2010). Large-scale retrospective studies have also examined the relationship between minor severity crashes and the risk of occupant whiplash complaints, including studies in the U.S. (Tencer et al., 2001), Germany (Eis et al., 2005; Hell et al., 2002) and Sweden (Krafft et al., 2005). Injury risk studies consider the following risk factors: Crash configuration (front, side, rear, rollover), Delta-V = Change in velocity, Vehicle mass (size, weight), Vehicle stiffness, Vehicle geometry and engagement, Restraint system and its adjustment, Occupant seated position, Occupant profile (age, gender, previous injury), Number of WAD symptoms, and Psychological Distress. Structural damage and known whiplash thresholds overlap, indicating structural damage and repair cost are a poor predictor of minor injury threshold. Damage can also vary widely by vehicle model and impact configuration.

Generated by Collision Sciences



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Cirsty Delgado

Direct 2393738026

ccdelgado@varnumlaw.com

April 7, 2025

Via U.S. Mail, Certified Mail RRR

Nephtalie Cadet
201 Shadow Lakes Drive
Fort Myers, FL 33912

Connie Seawright
201 Shadow Lakes Drive
Lehigh Acres, FL 33974

Re: Shadow Lakes at Lehigh Acres Homeowner's Association, Inc.
Notice of Intent to Lien
Property/Account: 201 Shadow Lakes Drive, Fort Myers, FL 33912
Owner: Nephtalie Cadet and Connie Seawright

Dear Nephtalie Cadet and Connie Seawright:

Our law firm represents the Shadow Lakes at Lehigh Acres Homeowner's Association, Inc. (the "Association"). Varnum LLP has been engaged to collect a debt, and any information obtained will be used for that purpose. The Association is the original party to whom the debt is owed.

As of the date of this letter, you owe the Association the following assessments and related charges which have become delinquent:

Assessments – (4/1/2024 - 4/1/2025 @ \$98.19 per month)	\$1,276.47
Interest	\$118.37
Late Fees	\$300.00
Legal Costs	\$21.00
Attorney Fees	\$387.00

Amount Due and Owing as of the date of this letter:	\$2,102.84

Further, pursuant to Florida law, we must provide you with at least forty-five (45) days' notice of all amounts due before a lien can be filed against your property. Accordingly, if payment of \$2,102.84, is not made within forty-five (45) days from the date of this letter, we have been instructed to place a lien on your property for all past due amounts and foreclose that lien. If you force the Association to take such action, you will also be responsible for all attorney's fees and costs so incurred pursuant to the Association's governing documents and Florida law.

How can you dispute this debt?

- Call or write to us by May 22, 2025, to dispute all or part of the debt. If you do not, we will assume that our information is correct.
- If you write to us by May 22, 2025, we must stop collection on any amount you dispute until we send you information that shows you owe the debt. You may use the form below or write us without the form. You may also include supporting documents. We accept disputes electronically at ccdelgado@varnumlaw.com.

What else can you do?

- Write to ask for the name and address of the original creditor, if different from the current creditor. If you write to us by May 22, 2025, we must stop collection until we send you that information. You may use the form below or write to us without the form. We accept such requests electronically at ccdelgado@varnumlaw.com.
- Contact us about your payment options.
- Póngase en contacto con nosotros para solicitar una copia de este formulario en español.

If you wish to contact us, we highly encourage you to do so by letter or email as no action can be taken based on a phone call without supporting documentation.

If any assessment, fines, fees, costs and/or charges, not yet due should come due between the date of this letter and the date of your payment, the amount of the accruing change should be included with your payment. To ensure proper credit, please make your check for **\$2,102.84, plus any additional accrued assessment or fee** payable to **"Shadow Lakes at Lehigh Acres Homeowner's Association, Inc."** and mail to my attention at **Varnum LLP, Attn: Joseph Bare, 4501 Tamiami Trail North, Suite 350, Naples, FL 34103.**

Very truly yours,

VARNUM



Joseph Bare

JAB/ccd

NOTICE TO ALL DEBTORS

We Are Professional Debt Collectors: Since a substantial portion of our firm's practice involves debt collection, we are considered debt collectors. Any information that we obtain in the course of communications with you will be used for that purpose.

Identification of the Creditor: The original creditor to which the debt is owed is the Association identified as our client.

Your Right to Dispute the Debt: It will be assumed that the debt is valid unless you dispute the validity of the debt within forty-five (45) days from the date you receive this letter. If you notify us that you are disputing the debt, we will suspend collection until written verification is provided to you.

How to Dispute the Debt: You must dispute this debt in writing. If you contend that we have failed to give you credit for a payment that you may have made, please provide a copy of your canceled check or other proof of payment. Otherwise, please explain, in detail, why you dispute the debt.

Bankruptcy: If you have been discharged in Bankruptcy, then you are not personally liable for any portion of the debt that arose prior to the date that you filed for Bankruptcy, but the Association's lien against the property is not affected and we may still proceed *in rem* to collect the full amount. If you have a Bankruptcy case that is still open and you contend that we are violating any stay that is in effect because of that, then please notify us of the case number, in writing, and we will immediately cease collection efforts until the stay is no longer in effect as it pertains to this property.

Payments: Payments made by check are not considered received until the check clears and the credit to the Association's account cannot be revoked. This will take fifteen (15) days for a personal check. You will be responsible for the payment of any and all fees incurred as a result of a check being returned for insufficient funds. Post-dated checks cannot be accepted and will be returned to you, and you will be charged a service fee.

Partial Payments: Pursuant to Section 718.116 and/or 720.3085, Florida Statutes, payments must first be applied to interest, then to late fees, then to attorney fees, then to costs, and then to the outstanding assessments in the order they became due. If you make less than full payment, you will be charged additional fees for restating the account and notifying you of the new balance due.

Additional Charges: If timely payment is not made in full in response to this letter, there will be additional fees and costs charged to your account as further time is spent in the collection process. We charge the account for preparing and monitoring payment plans, issuing estoppel letters, and similar services.

Do Not Make Direct Payments to the Association: Making payments directly to the Association will only delay our ability to give you prompt credit for the payment. You will be responsible for any fees incurred prior to the time we receive notice from the Association that your payment has cleared the Association's account.

THIS IS NOT AN ESTOPPEL CERTIFICATE

From: service=collisionsciences.ca@mail.collisionsciences.ca [service=collisionsciences.ca@mail.collisionsciences.ca]
on behalf of Collision Sciences <service@collisionsciences.ca> [service@collisionsciences.ca]
Sent: 10/27/2021 5:24:52 PM
To: Brian Hsu [bhsu@collisionsciences.ca]
Subject: ALERT - Honda Cable 825 Module Scanned

CrashScan

Accident Detector

Honda Cable 825 Module Scanned

This vehicle uses Honda cable 825. Check data accuracy with CDR replay.
Check if any new information is available.

[View Report](#)

Vehicle
2018 Honda Accord

VIN
1HGCV1F14JA123298

The Collision Sciences team is always here to help.
Please contact service@collisionsciences.ca with your questions.

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Hrg. EX.
101



Collision Sciences **MANAGEMENT REPORT**

EXPOSURE, RISK & DECISION SUPPORT

Company: American Family

Reporting Period:

2021-06-01 to 2021-06-30

Generated: 2021-07-02 15:55:29 (UTC)



LIST OF PURCHASED REPORTS

This section shows the list of vehicle reports purchased during the reporting period.

Report Info	Claim Number	Vehicle	Investigator	Links (Tags)	Fee
2021-06-01 (AF-07361)	01-003-268130	2019 Chevrolet Silverado 1GCUYEED1KZ412428	StreetDelivery	Download Full Report	USD \$300
2021-06-01 (AF-07364)	01-003-302014 Delta-V: 0.74 mph	2018 Toyota RAV4 JTMRJREV9JD215108	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-06-01 (AF-07367)	01-003-244171	2015 Kia Optima 5XXGN4A79FG404022	StreetDelivery	Download Full Report	USD \$300
2021-06-02 (AF-07372)	01-003-333564 Delta-V: 6.68 mph	2021 Toyota Corolla JTDEPMAE0MJ159894	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-06-02 (AF-07369)	01-003-372994 Delta-V: 7.46 mph	2014 Jeep Patriot 1C4NJRBB3ED632805	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-06-02 (AF-07375)	01-003-419951	2017 Kia Forte 3KPFK4A76HE067387	Ethos Risk Services	Download Full Report	USD \$300
2021-06-02 (AF-07377)	01-003-401046	2015 Nissan Murano 5N1AZ2MH2FN249316	Ethos Risk Services	Download Full Report	USD \$300
2021-06-02 (AF-07380)	01-002-316224	2015 Cadillac XTS 2G61M5S39F9209087	StreetDelivery	Download Full Report	USD \$300
2021-06-02 (AF-07386)	01-003-300961	2014 Honda CR-V 2HKRM4H71EH704562	StreetDelivery	Download Full Report	USD \$300
2021-06-03 (AF-07388)	01-003-376941 Delta-V: 10.56 mph	2015 Dodge Charger 2C3CDXHGXFH852330	StreetDelivery	Download Full Report (Delta-V, EDR Speed, Accident)	USD \$300

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2021-06-03 (AF-07394)	01-003-316611	2010 Ford Focus 1FAHP3FNXAW183768	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-06-03 (AF-07396)	01-003-205795	2007 Chrysler PT Cruiser 3A4FY58B97T538841	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-06-03 (AF-07398)	01-003-419951	2016 Nissan Rogue 5N1AT2MV4GC910350	Ethos Risk Services	<u>Download Full</u> Report	USD \$300
2021-06-03 (AF-07401)	01-003-313663	2019 Chevrolet Silverado 3GCPWCED1KG214861	HUB Enterprises	<u>Download Full</u> Report	USD \$300
2021-06-04 (AF-07404)	01-003-374602 Delta-V: 0.34 mph	2015 Lexus ES JTHBK1GG5F2173116	StreetDelivery	<u>Download Full</u> Report (Delta-V)	USD \$300
2021-06-04 (AF-07407)	01-003-159153 Delta-V: 5.21 mph	2006 Mercury Milan 3MEHM08136R657905	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed, DTCs, Title Issue)	USD \$300
2021-06-04 (AF-07391)	01-003-396611	2018 Ford Edge 2FMPK3K95JBB73708	StreetDelivery	<u>Download Full</u> Report (Junk/Salv./Ins., Title Issue)	USD \$300
2021-06-04 (AF-07410)	01-003-329712	2014 Chevrolet Impala 1G1125S32EU148372	Ethos Risk Services	<u>Download Full</u> Report	USD \$300
2021-06-04 (AF-07413)	01-003-329712 Delta-V: 3.77 mph	2007 Toyota Camry 4T1BE46K97U174013	Ethos Risk Services	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-06-05 (AF-07421)	01-003-386333 Delta-V: 8.08 mph	2018 Hyundai Elantra 5NPD84LF3JH239595	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed)	USD \$300
2021-06-07 (MSA-US- 00012)	B1P4753C	2014 Ford E-250 1FTNE2EW5EDA09177	CoventBridge	<u>Download Full</u> Report (DTCs)	USD \$300
2021-06-07 (AF-07424)	01-003-440001	2003 GMC Envoy 1GKDS13S732264280	StreetDelivery	<u>Download Full</u> Report	USD \$300
2021-06-07 (AF-07427)	01-003-336718 Delta-V: 0.51 mph	2013 Lexus GS JTHBE1BL0D5023857	StreetDelivery	<u>Download Full</u> Report (Delta-V, EDR Speed, Theft)	USD \$300

2021-06-08 (AF-07429)	01-003-374256	2014 Jeep Wrangler 1C4BJWFG2EL220534	StreetDelivery	Download Full Report	USD \$300
2021-06-08 (AF-07431)	01-003-407518	2012 Jeep Liberty 1C4PJLAK8CW180830	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-06-08 (AF-07434)	01-003-380405 Delta-V: 7.17 mph	2015 Ford Explorer 1FM5K8GT0FGA85237	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-06-09 (AF-07436)	01-003-307396 Delta-V: 6.21 mph	2018 Dodge Journey 3C4PDCAB3JT490331	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-06-09 (AF-07438)	01-003-290515	2018 Nissan Murano 5N1AZ2MG2JN169899	StreetDelivery	Download Full Report	USD \$300
2021-06-09 (AF-07441)	01-003-398990	2001 Chevrolet Corvette 1G1YY32G515120574	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-06-09 (AF-07444)	01-003-378760 Delta-V: 4.79 mph	2017 Toyota Sienna 5TDYZ3DC4HS832349	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-06-10 (AF-07447)	01-003-456290 Delta-V: 4.79 mph	2017 Toyota 4Runner JTEBU5JR3H5450713	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-06-10 (AF-07450)	01-003-456290	2001 Chevrolet Tahoe 1GNEK13T31J316765	StreetDelivery	Download Full Report (Delta-V, DTCs)	USD \$300
2021-06-10 (AF-07453)	01-003-420489	2003 Ford F-350 1FDWF36P13EC58013	StreetDelivery	Download Full Report (FF Speed, DTCs)	USD \$300
2021-06-10 (AF-07456)	01-003-257343	2014 Mazda 3 JM1BM1W77E1211186	StreetDelivery	Download Full Report (DTCs, Junk/Salv./Ins.)	USD \$300
2021-06-10 (AF-07459)	01-003-440001 Delta-V: 3.50 mph	2018 Toyota Corolla 5YFBURHE2JP841827	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300

2021-06-11 (AF-07462)	01-003-380499 Delta-V: 6.21 mph	2021 Volkswagen Atlas 1V2GP2CA0MC511656	StreetDelivery	Download Full Report (Delta-V, EDR Speed, DTCs)	USD \$300
2021-06-11 (AF-07465)	01-003-390465	2013 Chevrolet Silverado 1GB0CVCG3DF218356	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-06-11 (AF-07468)	01-003-268130	2020 Toyota Corolla 5YFEPRAE8LP086880	StreetDelivery	Download Full Report	USD \$300
2021-06-12 (AF-07471)	01-003-408623 Delta-V: 5.48 mph	2015 Lexus RX 2T2ZK1BA3FC176127	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-06-14 (AF-07474)	01-003-331701 Delta-V: 6.21 mph	2020 Chevrolet Trax 3GNCJMSB7LL185081	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-06-14 (AF-07477)	01-003-413011	2020 Cadillac XT6 1GYKPGRS0LZ212778	StreetDelivery	Download Full Report	USD \$300
2021-06-14 (AF-07480)	01-003-322529	2020 BMW M550i WBAJ57C01LBN96423	StreetDelivery	Download Full Report	USD \$300
2021-06-14 (AF-07483)	01-003-374793	2014 Mazda CX-5 JM3KE4CY6E0395500	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-06-15 (AF-07486)	01-003-475398 Delta-V: 9.29 mph	2010 Toyota Corolla 1NXBU4EE7AZ198428	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-06-15 (AF-07489)	01-003-320143	2017 Chevrolet Equinox 2GNALBEK8H1520388	StreetDelivery	Download Full Report (DTCs)	USD \$300
2021-06-15 (AF-07491)	01-003-452650	2013 Dodge Charger 2C3CDXBG9DH663559	StreetDelivery	Download Full Report (Accident)	USD \$300
2021-06-15 (AF-07494)	01-003-448976 Delta-V: 6.21 mph	2017 Chevrolet Cruze 3G1BE5SM7HS550655	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300
2021-06-15 (AF-07497)	01-003-385577 Delta-V: 7.03 mph	2010 Toyota Prius JTDKN3DU1A0047547	StreetDelivery	Download Full Report (Delta-V, EDR Speed)	USD \$300

2021-06-16 (AF-07500)	01-003-430419	2011 Ford Focus 1FAHP3HN7BW201352	StreetDelivery	<u>Download Full Report</u> (DTCs)	USD \$300
2021-06-16 (AF-07503)	01-003-366575 Delta-V: 6.21 mph	2018 Kia Optima 5XXGT4L39JG248797	Ethos Risk Services	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-06-17 (AF-07506)	01-003-429221 Delta-V: 6.30 mph	2012 Ford Escape 1FMCU9D70CKC72758	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed, FF Speed, DTCs)	USD \$300
2021-06-17 (AF-07507)	01-003-453521	2010 Pontiac G6 1G2ZA5E05A4154261	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-06-17 (AF-07510)	01-003-398990	2015 BMW 528i WBA5A5C54FD520255	StreetDelivery	<u>Download Full Report</u> (DTCs)	USD \$300
2021-06-17 (AF-07513)	01-003-487650	2017 Chevrolet Malibu 1G1ZB55T2HF224930	Ethos Risk Services	<u>Download Full Report</u>	USD \$300
2021-06-20 (AF-07516)	01-003-409869	2014 Chevrolet Silverado 1GCRCPEH8EZ325021	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-06-22 (AF-07518)	01-003-498357 Delta-V: 5.59 mph	2019 Dodge Durango 1C4RDHAG1KC779710	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-06-22 (AF-07521)	01-003-423415	2006 Chevrolet Impala 2G1WT58K469399636	StreetDelivery	<u>Download Full Report</u> (DTCs)	USD \$300
2021-06-22 (AF-07524)	01-003-249559	2009 Chevrolet Impala 2G1WT57K591172332	HUB Enterprises	<u>Download Full Report</u>	USD \$300
2021-06-22 (AF-07527)	01-003-335154	2018 BMW X6 5UXKU0C52J0G80426	StreetDelivery	<u>Download Full Report</u> (DTCs)	USD \$300
2021-06-22 (AF-07530)	01-003-496039	2012 Acura MDX 2HNYD2H8XCH510587	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-06-22 (AF-07532)	01-003-425301	2016 Nissan Sentra 3N1AB7AP3GY291003	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-06-22 (AF-07534)	01-003-401174	2019 RAM 1500 1C6SRFLTXXN542050	Holly Goodwin	<u>Download Full Report</u>	USD \$300

2021-06-23 (AF-07622)	01-003-474042 Delta-V: 2.78 mph	2005 Toyota Sequoia 5TDZT34A05S242701	HUB Enterprises	<u>Download Full Report</u> (Delta-V, FF Speed, DTCs)	USD \$300
2021-06-23 (AF-07537)	01-003-291336	2009 Ford Focus 1FAHP35N49W102115	HUB Enterprises	<u>Download Full Report</u> (Delta-V, EDR Speed, DTCs, Junk/Salv./Ins., Title Issue)	USD \$300
2021-06-23 (AF-07539)	01-003-327557	2015 Jeep Grand Cherokee 1C4RJFAG6FC893527	HUB Enterprises	<u>Download Full Report</u>	USD \$300
2021-06-23 (AF-07541)	01-003-416321	2017 Dodge Grand Caravan 2C4RDGCG4HR789851	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-06-23 (AF-07544)	01-003-490843	2019 GMC Yukon 1GKS2CKJ2KR218695	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-06-24 (AF-07549)	01-003-308141	2015 Nissan Rogue 5N1AT2MV9FC783691	HUB Enterprises	<u>Download Full Report</u>	USD \$300
2021-06-24 (AF-07547)	01-003-464504 Delta-V: 6.35 mph	2009 Toyota Camry 4T1BE46K19U289580	StreetDelivery	<u>Download Full Report</u> (Delta-V, EDR Speed)	USD \$300
2021-06-24 (AF-07552)	01-003-308141	2018 Toyota Camry 4T1B11HK2JU015719	HUB Enterprises	<u>Download Full Report</u>	USD \$300
2021-06-24 (MSA-US-00015)	01-B1P9871F-100003 Delta-V: 1.24 mph	2017 Honda Accord 1HGCR2F51HA085715	CoventBridge	<u>Download Full Report</u> (Delta-V)	USD \$300
2021-06-24 (MSA-US-00018)	01-B1P9871F-100003 Delta-V: 3.47 mph	2001 Ford F-250 1FTNW21F31EA15101	CoventBridge	<u>Download Full Report</u> (Delta-V)	USD \$300
2021-06-25 (AF-07554)	01-003-475713	2012 Jeep Patriot 1C4NJPBA3CD673847	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-06-25 (AF-07557)	01-003-432742	2017 Honda Accord 1HGCR2F88HA097838	StreetDelivery	<u>Download Full Report</u>	USD \$300
2021-06-25 (AF-07560)	01-003-455995	2016 Chevrolet Silverado 3GCUKREC4GG154378	StreetDelivery	<u>Download Full Report</u> (FF Speed, DTCs)	USD \$300

2021-06-25 (AF-07563)	01-003-491463 Delta-V: 5.59 mph	2019 Kia Forte 3KPF34AD0KE015540	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300
2021-06-26 (AF-07566)	01-003-464140 Delta-V: 3.34 mph	2009 Toyota Camry 4T4BE46K79R086652	Ethos Risk Services	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, Theft)	USD \$300
2021-06-27 (AF-07568)	01-003-419653	2016 Nissan Altima 1N4AL3AP2GC273061	StreetDelivery	<u>Download Full</u> <u>Report</u>	USD \$300
2021-06-27 (AF-07571)	01-003-478909	2014 Toyota Sienna 5TDDK3DC9ES090772	StreetDelivery	<u>Download Full</u> <u>Report</u>	USD \$300
2021-06-28 (AF-07574)	01-003-472828 Delta-V: 4.97 mph	2015 Kia Cadenza KNALN4D78F5185498	HUB Enterprises	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$300
2021-06-29 (AF-07577)	01-003-440274	2013 Hyundai Sonata 5NPEB4AC7DH753694	HUB Enterprises	<u>Download Full</u> <u>Report</u>	USD \$300
2021-06-29 (AF-07580)	01-003-405163 Delta-V: 4.03 mph	2005 Chevrolet Silverado 2GCEC19T751278227	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, FF Speed, DTCs)	USD \$300
2021-06-29 (AF-07583)	01-003-452545 Delta-V: 6.09 mph	2012 Toyota Prius JTDKN3DU5C1590753	StreetDelivery	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed)	USD \$300
2021-06-29 (AF-07589)	01-003-486528	2017 Chevrolet Traverse 1GNKV6KD6HJ175840	StreetDelivery	<u>Download Full</u> <u>Report</u>	USD \$300
2021-06-29 (AF-07592)	01-003-409234	2016 Honda Civic 2HGFC1F77GH634862	StreetDelivery	<u>Download Full</u> <u>Report</u> (DTCs)	USD \$300
2021-06-29 (AF-07595)	01-003-302940	2012 Ford Focus 1FAHP3F25CL309724	StreetDelivery	<u>Download Full</u> <u>Report</u> (DTCs)	USD \$300
2021-06-30 (AF-07598)	01-003-179370 Delta-V: 4.97 mph	2013 Ford Focus 1FADP3F26DL123738	HUB Enterprises	<u>Download Full</u> <u>Report</u> (Delta-V, EDR Speed, DTCs)	USD \$300

[Download Full](#)[Report](#)2021-06-30
(AF-07601)01-003-389157
Delta-V: 6.84 mph2014 Ford Focus
1FADP3N20EL248351

StreetDelivery

(Delta-V, EDR
Speed, DTCs,
Junk/Salv./Ins.,
Title Issue)

USD \$300

2021-06-30
(AF-07603)

01-003-421526

2008 Jeep Grand
Cherokee
1J8GR48K48C106214

StreetDelivery

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[Report](#)

USD \$300

2021-06-30
(AF-07606)

01-003-409234

2015 Hyundai Sonata
5NPE24AF5FH129678

StreetDelivery

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USD \$300

TOTAL
USD
\$27,000.00

REPORT SUMMARY

This section provides an overview of the predictive analytics used for the estimation of claim severity, exposure, and fraud risk for the most recent crash or event sequence.



Occupant Injuries

Seat Belt Use:

Number of Unbuckled Drivers: 0

Number of Unbuckled Front Passengers: 0

Probability of Injury given detected Collision Severity:

Total number of vehicles (having occupants) with more than 20% probability for initial whiplash: 73

Total number of vehicles (having occupants) with more than 20% probability for long-term whiplash: 56

Total number of vehicles (having occupants) with more than 20% probability for serious injury: 56

**The above statistical categories for injury severity are not mutually exclusive. One vehicle's occupants could be counted in multiple categories; for example, in both the initial symptoms and long-term injury risk.*



Driver Behavior

Number of Cases with Excessive Speeding:

91 - 100 mph: 0

100 mph +: 0

Number of Potential Distracted Drivers: 3

Number of Aggressive Acceleration Events: 2



FNOL Flags

Number of exceptions and discrepancies:

Potential Staged Collisions: 2

Reported Number of Occupants: N/A

Reported Vehicle Speed or Maneuver: N/A

Diagnostic validation (VIN, actual Airbag Deployment): N/A

Physical Damages (Areas or Date of Loss): N/A

Total Loss Assessment: N/A



Recommended Action

Moral Hazards:

Refer excessive speeding moral hazards to underwriting.
Number of cases where speed flagged above 90 mph: 0.

Contributory Negligence (Loss Reductions):

Review contributory negligence of unbuckled front passengers
in 3rd Party Liability claims. Number of Cases: 0.



FLAGS / LOSS INDICATORS

This section lists flags for further investigation based on known anti-fraud indicators and/or inconsistencies with reported circumstances.

Drive Down: 2 (5.3% of records with crash data)

Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.

Vehicle: 2018 Kia Optima

Date: 2021-06-16

Total Flags: 4

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Vehicle: 2012 Toyota Prius

Date: 2021-06-29

Total Flags: 2

[Download Full Report](#)

No Avoidance Maneuver: 2 (5.3% of records with crash data)

No driver input for either brake or steering maneuver within the 2 seconds prior to impact.

Vehicle: 2013 Lexus GS

Date: 2021-06-07

Total Flags: 3

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Vehicle: 2015 Lexus ES

Date: 2021-06-04

Total Flags: 3

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Possible Distracted Driver: 3 (7.9% of records with crash data)

In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.

Vehicle: 2018 Kia Optima

Date: 2021-06-16

Total Flags: 4

[Download Full Report](#)

Vehicle: 2012 Ford Escape

Date: 2021-06-17

Total Flags: 5

[Download Full Report](#)

Vehicle: 2015 Ford Explorer

Date: 2021-06-08

Total Flags: 3

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No Pre-Impact Speed Reduction: 1 (2.6% of records with crash data)

Brake is only applied lightly with no meaningful reduction in speed.

Vehicle: 2019 Dodge Durango

Date: 2021-06-22

Total Flags: 2

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Steered-To Sideswipe: 0 (0.0% of records with crash data)

Driver steers either left or right, causing an impact on the steered-to side.

Swoop & Squat: 0 (0.0% of records with crash data)

Driver steers to make a lane change and quickly applies brakes.

Panic Stop: 0 (0.0% of records with crash data)

Rear-end collision where driver brakes just prior to impact.

Possible Non-Recent Event: 23 (60.5% of records with crash data)

Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval.
Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).

Vehicle: 2014 Ford Focus

Date: 2021-06-30

Total Flags: 1

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Vehicle: 2015 Kia Cadenza

Date: 2021-06-28

Total Flags: 2

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Report](#)

Vehicle: 2020 Chevrolet Trax

Date: 2021-06-14

Total Flags: 1

[Download
Full
Report](#)

Vehicle: 2018 Kia Optima

Date: 2021-06-16

Total Flags: 4

[Download
Full
Report](#)

Vehicle: 2015 Lexus RX

Date: 2021-06-12

Total Flags: 3

[Download
Full
Report](#)

Vehicle: 2012 Ford Escape

Date: 2021-06-17

Total Flags: 5

[Download
Full
Report](#)

Vehicle: 2015 Ford Explorer

Date: 2021-06-08

Total Flags: 3

[Download
Full
Report](#)

Vehicle: 2014 Jeep Patriot

Date: 2021-06-02

Total Flags: 2

[Download
Full
Report](#)

Vehicle: 2015 Dodge Charger

Date: 2021-06-03

Total Flags: 1

[Download
Full
Report](#)

Vehicle: 2018 Toyota RAV4	Date: 2021-06-01	Total Flags: 3	Download Full Report
Vehicle: 2013 Ford Focus	Date: 2021-06-30	Total Flags: 3	Download Full Report
Vehicle: 2001 Chevrolet Tahoe	Date: 2021-06-10	Total Flags: 2	Download Full Report
Vehicle: 2015 Lexus ES	Date: 2021-06-04	Total Flags: 3	Download Full Report
Vehicle: 2019 Kia Forte	Date: 2021-06-25	Total Flags: 3	Download Full Report
Vehicle: 2017 Toyota 4Runner	Date: 2021-06-10	Total Flags: 2	Download Full Report
Vehicle: 2018 Dodge Journey	Date: 2021-06-09	Total Flags: 1	Download Full Report
Vehicle: 2005 Chevrolet Silverado	Date: 2021-06-29	Total Flags: 3	Download Full Report
Vehicle: 2018 Toyota Corolla	Date: 2021-06-10	Total Flags: 2	Download Full Report
Vehicle: 2017 Toyota Sienna	Date: 2021-06-09	Total Flags: 1	Download Full Report
Vehicle: 2018 Hyundai Elantra	Date: 2021-06-05	Total Flags: 2	Download Full Report
Vehicle: 2021 Toyota Corolla	Date: 2021-06-02	Total Flags: 1	Download Full Report
Vehicle: 2021 Volkswagen Atlas	Date: 2021-06-11	Total Flags: 2	Download Full Report
Vehicle: 2017 Chevrolet Cruze	Date: 2021-06-15	Total Flags: 1	Download Full Report

Possible Intentional Damage: 1 (2.6% of records with crash data)

Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.

Vehicle: 2013 Lexus GS

Date: 2021-06-07

Total Flags: 3

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Pre-Damaged Vehicle: 10 (26.3% of records with crash data)

Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.

Vehicle: 2010 Toyota Prius

Date: 2021-06-15

Total Flags: 1

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Vehicle: 2015 Lexus RX

Date: 2021-06-12

Total Flags: 3

[Download Full Report](#)

Vehicle: 2012 Ford Escape

Date: 2021-06-17

Total Flags: 5

[Download Full Report](#)

Vehicle: 2009 Toyota Camry

Date: 2021-06-26

Total Flags: 2

[Download Full Report](#)

Vehicle: 2018 Toyota RAV4

Date: 2021-06-01

Total Flags: 3

[Download Full Report](#)

Vehicle: 2013 Ford Focus

Date: 2021-06-30

Total Flags: 3

[Download Full Report](#)

Vehicle: 2009 Toyota Camry

Date: 2021-06-24

Total Flags: 2

[Download Full Report](#)

Vehicle: 2017 Toyota 4Runner

Date: 2021-06-10

Total Flags: 2

[Download Full Report](#)

Vehicle: 2012 Toyota Prius

Date: 2021-06-29

Total Flags: 2

[Download Full Report](#)

Vehicle: 2021 Volkswagen Atlas

Date: 2021-06-11

Total Flags: 2

[Download Full Report](#)

Unbuckled Driver: 0 (0.0% of records with crash data)

Driver not wearing seat belt at the time of crash data recording.

Unbuckled Passenger: 0 (0.0% of records with crash data)

Front passenger not wearing seat belt at the time of crash data recording.

Emissions Test Failure: 12 (31.6% of records with crash data)

Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).

Vehicle: 2006 Chevrolet Impala

Date: 2021-06-22

Total Flags: 1

[Download Full Report](#)

Vehicle: 2012 Ford Escape

Date: 2021-06-17

Total Flags: 5

[Download Full Report](#)

Vehicle: 2016 Chevrolet Silverado

Date: 2021-06-25

Total Flags: 1

[Download Full Report](#)

Vehicle: 2001 Chevrolet Tahoe

Date: 2021-06-10

Total Flags: 2

[Download Full Report](#)

Vehicle: 2003 Ford F-350

Date: 2021-06-10

Total Flags: 1

[Download Full Report](#)

Vehicle: 2017 Chevrolet Equinox

Date: 2021-06-15

Total Flags: 1

[Download Full Report](#)

Vehicle: 2019 Kia Forte

Date: 2021-06-25

Total Flags: 3

[Download Full Report](#)

Vehicle: 2005 Toyota Sequoia

Date: 2021-06-23

Total Flags: 2

[Download Full Report](#)

Vehicle: 2005 Chevrolet Silverado

Date: 2021-06-29

Total Flags: 3

[Download Full Report](#)

Vehicle: 2018 Toyota Corolla

Date: 2021-06-10

Total Flags: 2

[Download Full Report](#)

Vehicle: 2009 Ford Focus

Date: 2021-06-23

Total Flags: 1

[Download Full Report](#)

Vehicle: 2012 Jeep Liberty

Date: 2021-06-08

Total Flags: 1

[Download Full Report](#)

Low Velocity Impact: 21 (55.3% of records with crash data)

An impact in which the mean acceleration is below 3.0 g.

Vehicle: 2013 Lexus GS

Date: 2021-06-07

Total Flags: 3

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Vehicle: 2015 Kia Cadenza

Date: 2021-06-28

Total Flags: 2

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Vehicle: 2018 Kia Optima	Date: 2021-06-16	Total Flags: 4	Download Full Report
Vehicle: 2015 Lexus RX	Date: 2021-06-12	Total Flags: 3	Download Full Report
Vehicle: 2006 Mercury Milan	Date: 2021-06-04	Total Flags: 1	Download Full Report
Vehicle: 2012 Ford Escape	Date: 2021-06-17	Total Flags: 5	Download Full Report
Vehicle: 2001 Ford F-250	Date: 2021-06-24	Total Flags: 1	Download Full Report
Vehicle: 2009 Toyota Camry	Date: 2021-06-26	Total Flags: 2	Download Full Report
Vehicle: 2007 Toyota Camry	Date: 2021-06-04	Total Flags: 1	Download Full Report
Vehicle: 2015 Ford Explorer	Date: 2021-06-08	Total Flags: 3	Download Full Report
Vehicle: 2014 Jeep Patriot	Date: 2021-06-02	Total Flags: 2	Download Full Report
Vehicle: 2019 Dodge Durango	Date: 2021-06-22	Total Flags: 2	Download Full Report
Vehicle: 2018 Toyota RAV4	Date: 2021-06-01	Total Flags: 3	Download Full Report
Vehicle: 2013 Ford Focus	Date: 2021-06-30	Total Flags: 3	Download Full Report
Vehicle: 2015 Lexus ES	Date: 2021-06-04	Total Flags: 3	Download Full Report
Vehicle: 2019 Kia Forte	Date: 2021-06-25	Total Flags: 3	Download Full Report
Vehicle: 2009 Toyota Camry	Date: 2021-06-24	Total Flags: 2	Download Full Report
Vehicle: 2005 Toyota Sequoia	Date: 2021-06-23	Total Flags: 2	Download Full Report

Vehicle: 2005 Chevrolet Silverado**Date:** 2021-06-29**Total Flags:** 3[Download Full Report](#)**Vehicle:** 2018 Hyundai Elantra**Date:** 2021-06-05**Total Flags:** 2[Download Full Report](#)**Vehicle:** 2017 Honda Accord**Date:** 2021-06-24**Total Flags:** 1[Download Full Report](#)**Odometer Rollback:** 0 (0.0% of records with crash data)

Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.



STATISTICAL ANALYSIS

This section lists statistics based on an analysis of vehicle reports associated with the company.

General Statistics

General statistics related to reports completed during the reporting period.

Description	Statistics
Total number of vehicle scans during period	90
Total number of supported vehicles	90
Total number of supported vehicle reports with crash data	38
Total number of supported vehicle reports with no event data	52
Total number of vehicle reports with excess speed detected	N/A
Total number of vehicle reports with top speed information	36
Total number of loss indicators	63
Total number with DriveClean passed v.s. failed	80:12
Total number of DTCs found	19
Total number of unique DTCs	18
Total number of vehicles with more than 20% probability for initial whiplash	73
Total number of vehicles with more than 20% probability for long-term whiplash	56
Total number of vehicles with more than 20% probability for serious injury	56

Statistics on Maximum Travel Speed

This section lists statistics on maximum travel speed recorded in the most recent crash event(s). The maximum travel speed is extracted from pre-crash data of up to 5 seconds prior to impact. Therefore, the travel speed is not necessarily equivalent to the speed at impact.

Speed Range**Number of Cases**

61 - 70 mph	1
71 - 80 mph	0
81 - 90 mph	0
91 - 100 mph	0
100 mph +	0

Statistics on Unbuckled Occupant Injury Risk

This section lists statistics on injury risk for unbuckled occupants.

Probability of Long-term WAD**Number of Cases**

1 - 10%	0
11 - 20%	0
21 - 30%	0
31 - 40%	0
41 - 50%	0
51 - 60%	0
61 - 70%	0
71 - 80%	0
81 - 90%	0
91%+	0

Probability of Serious Injury**Number of Cases**

1 - 10%	0
11 - 20%	0
21 - 30%	0
31 - 40%	0
41 - 50%	0
51%+	0

Statistics on Flags / Loss Indicators

Statistics categorized by flags / loss indicators.

Indicator**Description****Number of Cases**

Drive Down	Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.	2
No Avoidance Maneuver	No driver input for either brake or steering maneuver within the 2 seconds prior to impact.	2

Possible Distracted Driver	In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.	3
No Pre-Impact Speed Reduction	Brake is only applied lightly with no meaningful reduction in speed.	1
Steered-To Sideswipe	Driver steers either left or right, causing an impact on the steered-to side.	0
Swoop & Squat	Driver steers to make a lane change and quickly applies brakes.	0
Panic Stop	Rear-end collision where driver brakes just prior to impact.	0
Possible Non-Recent Event	Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval. Possible issues include Unrelated Damage or Past Posting (no insurance at time of collision).	23
Possible Intentional Damage	Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.	1
Pre-Damaged Vehicle	Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.	10
Unbuckled Driver	Driver not wearing seat belt at the time of crash data recording.	0
Unbuckled Passenger	Front passenger not wearing seat belt at the time of crash data recording.	0
Emissions Test Failure	Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).	12
Low Velocity Impact	An impact in which the mean acceleration is below 3.0 g.	21
Odometer Rollback	Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. For example, in EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.	0

Statistics by Model Year

Statistics categorized by vehicle model year.

Year	Cases	Total Flags	Distracted Drivers	Speeding Cases	Short-term WAD > 20%	Long-term WAD > 20%	Serious Injury > 20%
2021	2	3	0	0	2	0	0
2020	4	1	0	0	4	3	3
2019	6	4	0	0	4	4	4
2018	9	11	1	0	7	4	4
2017	10	5	0	0	9	6	6
2016	5	0	0	0	5	5	5
2015	12	12	1	0	9	7	7
2014	10	3	0	0	10	8	8
2013	5	6	0	1	3	3	3
2012	6	6	1	0	5	4	4

2011	1	0	0	0	1	1	1
2010	4	1	0	0	4	2	2
2009	4	4	0	0	3	2	2
2008	1	0	0	0	1	1	1
2007	2	1	0	0	1	1	1
2006	2	1	0	0	1	1	1
2005	2	3	0	0	0	0	0
2003	2	0	0	0	2	2	2
2001	3	2	0	0	2	2	2

Statistics by Vehicle Make

Statistics categorized by vehicle make.

Make	# Cases	Front Delta-V Range	Rear Delta-V Range	Side Delta-V Range
Dodge	0	5.6 to 10.6 mph	N/A	N/A
Cadillac	0	N/A	N/A	N/A
Nissan	0	N/A	N/A	N/A
Chevrolet	0	4.0 to 6.2 mph	N/A	0.6 to 1.2 mph
GMC	0	N/A	N/A	N/A
Mercury	0	5.2 to 5.2 mph	N/A	1.3 to 1.3 mph
Chrysler	0	N/A	N/A	N/A
Ford	0	0.5 to 7.2 mph	6.8 to 6.8 mph	0.2 to 1.4 mph
Lexus	0	5.5 to 5.5 mph	N/A	0.1 to 0.5 mph
Toyota	0	0.1 to 6.9 mph	2.8 to 9.3 mph	0.3 to 0.7 mph
Honda	0	N/A	0.6 to 1.2 mph	N/A
Mazda	0	N/A	N/A	N/A
Jeep	0	7.5 to 7.5 mph	N/A	N/A
Hyundai	0	8.1 to 8.1 mph	N/A	N/A
Volkswagen	0	6.2 to 6.2 mph	1.2 to 1.2 mph	0.6 to 0.6 mph
RAM	0	N/A	N/A	N/A
Kia	0	5.0 to 6.2 mph	N/A	0.6 to 1.2 mph
Acura	0	N/A	N/A	N/A
Pontiac	0	N/A	N/A	N/A
BMW	0	N/A	N/A	N/A

Event Data Disclaimer

It is important to note is that if a vehicle was spinning or rolling surrounding the collision, then the report's speed measurements would not accurately reflect the actual speed of the vehicle during/after it lost control; the speed measurement is typically based on the wheel speed sensor. Signs of this

type of anomaly would be rapid changes in speed between the brief timing intervals. The reported speed may be an average of the four wheels; thus could also be skewed by spinning wheels. In combination with scene evidence, an expert could assess vehicle speed by analyzing the data via accident reconstruction and engineering analysis.

Users of the Collision Sciences service and reviewers of the reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Collision Sciences Inc. and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Collision Sciences Inc. expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the online services, evidence logistics, EDR data, EDR software or use thereof.

Injury Risk / Biomechanical Assessment Disclaimer

The estimated injury risks are calculated based on the recorded crash pulse, relative energy changes, known vehicle characteristics in standardized and real-world crashes, published databases, and recognized studies. The provided information can be used as a guide in settlement decisions but cannot be used to definitively prove the existence or non-presence of an injury. In cases with a very low risk of whiplash or other injury, claims can be identified for further investigation. Conversely, for cases with a high risk of whiplash or other injury, the claim can be expedited, since early treatment is often effective in reducing the long term prognosis.

Delta-V (Change in Velocity) has traditionally been used to correlate crash severity with risk of occupant injury (Augenstein et al., 2003; Bahouth et al., 2004; Sunnevang et al., 2009; Kononen et al., 2011). Injury tolerance and risk for various injury types based on real-world crashes with recorded crash data have been established (Gabauer and Gabler, 2006; Gabauer and Gabler, 2008; Kullgren and Krafft, 2008; Ydenius, 2010). Large-scale retrospective studies have also examined the relationship between minor severity crashes and the risk of occupant whiplash complaints, including studies in the U.S. (Tencer et al., 2001), Germany (Eis et al., 2005; Hell et al., 2002) and Sweden (Krafft et al., 2005). Injury risk studies consider the following risk factors: Crash configuration (front, side, rear, rollover). Delta-V = Change in velocity, Vehicle mass (size, weight), Vehicle stiffness, Vehicle geometry and engagement, Restraint system and its adjustment, Occupant seated position, Occupant profile (age, gender, previous injury), Number of WAD symptoms, and Psychological Distress. Structural damage and known whiplash thresholds overlap, indicating structural damage and repair cost are a poor predictor of minor injury threshold. Damage can also vary widely by vehicle model and impact configuration.

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on behalf of Collision Sciences <service@collisionsciences.ca> [service@collisionsciences.ca]
Sent: 6/24/2021 3:24:18 PM
To: Brian Hsu [bhsu@collisionsciences.ca]
Subject: ALERT - Ford Cable 823 Module Scanned

CrashScan

Accident Detector

Ford Cable 823 Module Scanned

This vehicle uses Ford cable 823. Check data accuracy with CDR replay.
Check if any new information is available.

[View Report](#)

Vehicle
2017 Ford Fusion

VIN
3FA6P0HD8HR282807

The Collision Sciences team is always here to help.
Please contact service@collisionsciences.ca with your questions.

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Hrg. EX.
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CDR File Information

User Entered VIN/Frame Number	AHTAA3DD001725854
User	NONE
Case Number	NONE
EDR Data Imaging Date	
Crash Date	
Filename	AHTAA3DD001725854_ACM 2021 TOYOTA HILUX.CDRX
Saved on	Tuesday, April 20 2021 at 09:43:07
Imaged with CDR version	Crash Data Retrieval Tool 19.4.2
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.4.2
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	Front/Rear (1), Side (1)

Comments

No comments entered.

Data Limitations

CDR Record Information:

- Due to limitations of the data recorded by the airbag ECU, such as the resolution, data range, sampling interval, time period of the recording, and the items recorded, the information provided by this data may not be sufficient to capture the entire crash.
- Pre-Crash data is recorded in discrete intervals. Due to different refresh rates within the vehicle's electronics, the data recorded may not be synchronous to each other.
- Airbag ECU data should be used in conjunction with other physical evidence obtained from the vehicle and the surrounding circumstances.
- If any of the front passenger seat airbags, side airbags, or Curtain Shield Airbags have deployed, data will not be overwritten or deleted by the airbag ECU following that event. If none of the airbags have deployed, the data of that event may be overwritten by a following event even if other airbags (pretensioner, rear seat airbag, etc.) have deployed.
- If power supply to the airbag ECU is lost during an event, all or part of the data may not be recorded.
- "Diagnostic Trouble Codes" are information about faults when a recording trigger is established. Various diagnostic trouble codes could be set and recorded due to component or system damage during an accident.
- The airbag ECU records only diagnostic information related to the airbag system. It does not record diagnostic information related to other vehicle systems.
- The TaSCAN, Global Tech Stream, or Intelligent Tester II devices (or any other Toyota genuine diagnostic tool) can be used to obtain detailed information on the diagnostic trouble codes from the airbag system, as well as diagnostic information from other systems. However, in some cases, the diagnostic trouble codes of the airbag system recorded by the airbag ECU when the event occurred may not match the diagnostic trouble codes read out when the diagnostic tool is used.

General Information:

- The data recording specifications of Toyota's airbag ECUs are divided into the following categories. The specifications for 12EDR or later are designed to be compatible with NHTSA's 49CFR Part 563 rule.
 - 00EDR / 02EDR / 04EDR / 06EDR / 10EDR / 12EDR / 13EDR / 15EDR / 17EDR / 19EDR
- The airbag ECU records data for all or some of the following accident types: frontal crash, rear crash, side crash, and rollover events. Depending on the installed airbag ECU, data for side crash and/or rollover events may not be recorded.
- This airbag ECU records pre-crash data and post-crash data.
 - If a single event occurs independently, the data for that event is recorded on a one-to-one basis.
 - If multiple events occur successively (within a period of approximately 500ms), the establishment of the recording trigger for the first event is defined as the "pre-crash recording trigger". Pre-crash data for the first event and post-crash data for each successive event is then recorded.
- The airbag ECU has two recording pages (memory maps) to store pre-crash data. Additionally, to store post-crash data, the airbag ECU has two recording pages for each accident type: two pages for frontal and rear crash, two pages for a side crash, and two pages for rollover event.
- The data recorded by the airbag ECU includes correlating information between each previously occurring event (i.e., information that clarifies the collision event sequence. This correlation information consists of the following items.
 - Time from Previous Pre-Crash TRG
 - Linked Pre-Crash Page
 - Time from Pre-Crash TRG
 - TRG Count
 - Previous Crash Type

**Fig. EX
105**

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CDR File Information

User Entered VIN/Frame Number	JTDEPMAE0MJ159894
User	NONE
Case Number	NONE
EDR Data Imaging Date	
Crash Date	
Filename	JTDEPMAE0MJ159894_ACM 2021 TOYOTA COROLLA.CDRX
Saved on	Wednesday, June 2 2021 at 11:31:27
Imaged with CDR version	Crash Data Retrieval Tool 19.4.2
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.4.2
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	Front/Rear/Side Events (1)

Comments

No comments entered.

Data Limitations

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- The airbag ECU records only diagnostic information related to the airbag system. It does not record diagnostic information related to other vehicle systems.
- The TaSCAN, Global Tech Stream, or Intelligent Tester II devices (or any other Toyota genuine diagnostic tool) can be used to obtain detailed information on the diagnostic trouble codes from the airbag system, as well as diagnostic information from other systems. However, in some cases, the diagnostic trouble codes of the airbag system recorded by the airbag ECU when the event occurred may not match the diagnostic trouble codes read out when the diagnostic tool is used.

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- 00EDR / 02EDR / 04EDR / 06EDR / 10EDR / 12EDR / 13EDR / 15EDR / 17EDR / 19EDR
- The airbag ECU records data for all or some of the following accident types: frontal crash, rear crash, side crash, and rollover events. Depending on the installed airbag ECU, data for side crash and/or rollover events may not be recorded.
- The airbag ECU has the following recording pages (memory maps) for each accident type to store event data: four pages for frontal/rear/side crash, four pages for a side crash, and two pages for rollover event.
- When a crash impact for a lateral direction is occurred, data may be recorded in a page for frontal/rear/side crash. And additional data may be recorded in a page for side crash.
- The data recorded by the airbag ECU includes correlating information between each previously occurring event (i.e., information that clarifies the collision event sequence. This correlation information consists of the following items.
- Time from Previous TRG
- TRG Count
- Previous Crash Type
- In frontal/rear/side crash events, earlier point in the following is regarded as time zero for the recorded data.
- the first point where a longitudinal cumulative delta-V of over 0.8 km/h (0.5 mph) is reached
- the first point where a lateral cumulative delta-V of over 0.8 km/h (0.5 mph) is reached
In side crash event and rollover event, the point in time at which the recording trigger is established is regarded as time zero for the recorded data.
- The recording trigger judgment threshold value differs depending on the collision type (i.e., frontal crash, rear crash, side crash, or rollover event).
- Some of the data recorded by the airbag ECU is transmitted to the airbag ECU from various vehicle control modules by the vehicle's Controller

**Hrg. EX
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CDR File Information

User Entered VIN/Frame Number	3TYCZ5AN9MT020670
User	NONE
Case Number	NONE
EDR Data Imaging Date	
Crash Date	
Filename	3TYCZ5AN9MT020670_ACM 2021 TOYOTA TACOMA RESCAN.CDRX
Saved on	Thursday, August 19 2021 at 13:15:46
Imaged with CDR version	Crash Data Retrieval Tool 19.4.2
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.4.2
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	Rollover (2)

Comments

No comments entered.

Data Limitations

CDR Record Information:

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- The airbag ECU records data for all or some of the following accident types: frontal crash, rear crash, side crash, and rollover events. Depending on the installed airbag ECU, data for side crash and/or rollover events may not be recorded.
- This airbag ECU records record pre-crash data and post-crash data.
 - If a single event occurs independently, the data for that event is recorded on a one-to-one basis.
 - If multiple events occur successively (within a period of approximately 500ms), the establishment of the recording trigger for the first event is defined as the "pre-crash recording trigger". Pre-crash data for the first event and post-crash data for each successive event is then recorded.
- The airbag ECU has two recording pages (memory maps) to store pre-crash data. Additionally, to store post-crash data, the airbag ECU has two recording pages for each accident type: two pages for frontal and rear crash, two pages for a side crash, and two pages for rollover event.
- The data recorded by the airbag ECU includes correlating information between each previously occurring event (i.e., information that clarifies the collision event sequence. This correlation information consists of the following items.
 - Time from Previous Pre-Crash TRG
 - Linked Pre-Crash Page
 - Time from Pre-Crash TRG
 - TRG Count
 - Previous Crash Type

Hrg. EX.
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CDR File Information

User Entered VIN/Frame Number	5TFDY5F19MX959417
User	NONE
Case Number	NONE
EDR Data Imaging Date	
Crash Date	
Filename	5TFDY5F19MX959417_ACM 2021 TOYOTA TUNDRA.CDRX
Saved on	Friday, September 17 2021 at 13:02:06
Imaged with CDR version	Crash Data Retrieval Tool 19.4.2
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.4.2
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	Front/Rear/Side Events (2), Side Events (2), Rollover Events (2)

Comments

No comments entered.

Data Limitations

CDR Record Information:

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- The airbag ECU records data for all or some of the following accident types: frontal crash, rear crash, side crash, and rollover events. Depending on the installed airbag ECU, data for side crash and/or rollover events may not be recorded.
- The airbag ECU has the following recording pages (memory maps) for each accident type to store event data: four pages for frontal/rear/side crash, four pages for a side crash, and two pages for rollover event.
- When a crash impact for a lateral direction is occurred, data may be recorded in a page for frontal/rear/side crash. And additional data may be recorded in a page for side crash.
- The data recorded by the airbag ECU includes correlating information between each previously occurring event (i.e., information that clarifies the collision event sequence. This correlation information consists of the following items.
- Time from Previous TRG
- TRG Count
- Previous Crash Type
- In frontal/rear/side crash events, earlier point in the following is regarded as time zero for the recorded data.
- the first point where a longitudinal cumulative delta-V of over 0.8 km/h (0.5 mph) is reached
- the first point where a lateral cumulative delta-V of over 0.8 km/h (0.5 mph) is reached
In side crash event and rollover event, the point in time at which the recording trigger is established is regarded as time zero for the recorded data.
- The recording trigger judgment threshold value differs depending on the collision type (i.e., frontal crash, rear crash, side crash, or rollover event).
- Some of the data recorded by the airbag ECU is transmitted to the airbag ECU from various vehicle control modules by the vehicle's Controller

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Printed on: Friday, September 17 2021 at 13:03:07

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CDR File Information

User Entered VIN	5FNYP8H28MB007467
User	NONE
Case Number	NONE
EDR Data Imaging Date	
Crash Date	
Filename	5FNYP8H28MB007467_ACM 2021 HONDA PASSPORT.CDRX
Saved on	Monday, July 26 2021 at 12:17:50
Imaged with CDR version	Crash Data Retrieval Tool 19.4.2
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.4.2
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	None

Comments

No comments entered.

Data Limitations

General Information:

These limitations are intended to assist you in reading the event data that has been imaged from the vehicle's SRS control unit. They contain general information and are not specific to this particular event. Event data should be considered in conjunction with other available physical evidence from the vehicle and scene.

Honda and Acura passenger vehicles designated as 2013 or later model year production are designed to be compatible with the Bosch CDR tool. Only some 2012 model year vehicles are compatible with the Bosch CDR tool.

Recorded Crash Events:

Data for front, side, rear and rollover events can be recorded as either non-deployment or deployment events. Both types of events can contain pre-crash and crash data.

- A non-deployment event is recorded if the change in longitudinal or lateral velocity equals or exceeds 8km/h over a 150ms timeframe or another type of non-reversible deployable restraint device other than a front, side, or side curtain airbag (e.g. seatbelt pretensioner) is commanded to deploy. Except as indicated below, non-deployment events are not locked into memory and can be over-written by subsequent non-deployment or deployment events.
- A deployment event is recorded if front airbag(s), side airbag(s), or side curtain airbag(s) are commanded to deploy. Deployment events are locked into memory and cannot be over-written.

The SRS control unit typically records only one event. Two events can be recorded if the T0 (time zero) values for each event occur within 5 seconds of each other. Therefore, a non-deployment event can be recorded and locked if it occurs within 5 seconds of a deployment event.

T0 is established by whichever of the following occurs first: (1) the change in longitudinal velocity at the SRS control unit equals or exceeds 0.8km/h over a 20ms timeframe; or (2) the change in lateral velocity at the SRS control unit equals or exceeds 0.8km/h over a 5ms timeframe; or (3) the occupant restraint control algorithm is activated; or (4) a commanded deployment of any type of non-reversible deployable restraint device (e.g. airbag or seatbelt pretensioner). If the time to deploy equals 0, then the command to deploy occurred at T0 or the device was not commanded to deploy during the event.

TEnd (end of event) is established by whichever of the following occurs first: (1) the change in longitudinal and lateral Delta V equals or falls below 0.8km/h over a 20ms timeframe; or (2) the occupant restraint control algorithm resets; or (3) time from T0 exceeds 300ms.

Data:

- Data recorded by the SRS control unit and imaged by the CDR tool is displayed relative to T0, not the time at which the vehicle made contact with another vehicle or object.
- Pre-crash data is recorded at 2 samples per second within the 5 seconds before T0. The sampling point at 0.0 is taken at T0 and is asynchronous with the other sample points. The time between -0.5 and 0.0 is not recorded and is between 1 and 500ms.
- Delta V data is recorded at 100 samples per second from T0 to 250ms or T0 to TEnd plus 30ms.
- Acceleration data is recorded at 100 samples per second from T0 to 250ms.
- Delta V, longitudinal reflects the change in velocity that the SRS control unit experienced in the longitudinal direction during the recorded portion of the event and is not the speed the vehicle was traveling before the event.
- Depending on the severity of the event and the accelerometer characteristics, longitudinal or lateral accelerometers may occur, decreasing the recorded Delta V value.

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IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

CDR File Information

User Entered VIN	KL8CB6SA3MC702472
User	
Case Number	
EDR Data Imaging Date	04/05/2021
Crash Date	
Filename	KL8CB6SA3MC702472_ACM 2021 CHEVROLET SPARK.CDRX
Saved on	Monday, April 5 2021 at 11:50:31
Imaged with CDR version	Crash Data Retrieval Tool 19.4.2
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.4.2
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	Non-Deployment

Comments

No comments entered.

Data Limitations

Recorded Crash Events:

There are two types of recorded crash events for Front, Side, and Rear (FSR) Events. The first is the Non-Deployment Event. A Non-Deployment Event records data but does not deploy the air bag(s). The minimum SDM Recorded Vehicle Velocity Change, that is needed to record a Non-Deployment Event, is five MPH [8 km/h]. A Non-Deployment Event contains Pre-Crash and Crash data. The oldest Non-Deployment event can be overwritten by a Deployment Event, if all three records are full and the Non-Deployment Event is not locked. A Non-Deployment Event can be overwritten by a more recent Non-Deployment Event if all three records are full and the Non-Deployment is older than approximately 250 ignition cycles. Also, a Non-Deployment event can be recorded if one of the following occurs without the Deployment of any of the frontal air bags, side air bags, or roll bars:

- Pretensioner(s) only Deployment
- Head Rest Deployment
- Battery Cut-Off Deployment

The second type of SDM recorded crash event for FSR Events is the Deployment Event. It also contains Pre-Crash and Crash data. Deployment Events cannot be overwritten or cleared by the SDM.

Rollover Events contains Pre-Crash and Crash data. Rollover event follow the same rules as FSR Deployment events.

The SDM can store up to three Events.

Data:

For FSR Events, SDM Recorded Vehicle Velocity Change reflects the change in velocity that the sensing system experienced during the recorded portion of the event. SDM Recorded Vehicle Velocity Change is the change in velocity during the recording time and is not the speed the vehicle was traveling before the event, and is also not the Barrier Equivalent Velocity. For Deployment and Non-Deployment Events, the SDM will record up to 300 milliseconds of data after time zero. The SDM will also record up to 300 milliseconds of Vehicle Acceleration data after time zero.

For Rollover Events, the SDM may record Lateral Acceleration, Vertical Acceleration, and Roll Rate data, if the SDM is rollover capable. This data reflects what the sensing system experienced during the recorded portion of the event. For Rollover Deployment Events, the SDM will record up to 700 milliseconds of data before the Deployment criteria is met and 290 milliseconds after the Deployment criteria is met.

-Deployment loops may be displayed as being deployed in a Non-Deployment event record, if a Deployment event is qualified during the Non-Deployment event. That is, if two or more events are occurring at the same time and one is a Non-Deployment event and one of the others is a Deployment event, and the Deployment event is qualified while the Non-Deployment is still active, the deployed loops may be recorded in the Non-Deployment event record.

-Time between events is recorded in 10 msec Intervals and is displayed in seconds for a maximum time of 655.33 seconds.

-The Maximum SDM Recorded Vehicle Velocity Change may occur between the recorded 10 millisecond sample points of the SDM Recorded Vehicle Velocity Change.

-Event Recording Complete will indicate if data from the recorded event has been fully written to the SDM memory or if it has been interrupted and not fully written.

-SDM Recorded Vehicle Speed accuracy can be affected by various factors, including but not limited to the following:

- Significant changes in the tire's rolling radius
- Final drive axle ratio changes

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Printed on: Monday, April 5 2021 at 11:51:26

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CDR File Information

User Entered VIN	1V2AP2CA5MC501341
User	NONE
Case Number	NONE
EDR Data Imaging Date	
Crash Date	
Filename	1V2AP2CA5MC501341_ACM 2021 VOLKSWAGEN ATLAS.CDRX
Saved on	Monday, February 22 2021 at 12:03:43
Imaged with CDR version	Crash Data Retrieval Tool 19.4.2
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.4.2
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	Record 1, Record 2

Comments

No comments entered.

Data Limitations

AIRBAG CONTROL MODULE (ACM) DATA LIMITATIONS:

General Information:

These limitations are intended to assist you in reading the event data that has been imaged from the vehicle's Airbag Control Module (ACM). They are not intended to provide specific information regarding the interpretation of this data. Event data should be examined in conjunction with other available physical evidence from the vehicle and scene.

Note: The ACM's current DTC status will be altered if the ACM is powered-up without the vehicle periphery connected. This situation might occur when the CDR tool is connected directly to the ACM (e.g. for bench top imaging). It will not affect the stored EDR data, but may result in additional DTCs within the ACM.

Note: During bench top imaging, make sure the ACM is not moved, tilted or turned over while connected to and powered by the CDR Interface Module. Also, after a CDR imaging process, wait one minute after power is removed from the ACM before attempting to move the module. Not following these general ACM guidelines for bench top imaging could cause new events to be recorded in the ACM.

Recorded Crash Events:

This ACM is capable of recording up to 6 events of front, side, rear or rollover within its memory. Each record contains 5 seconds of pre-crash data and at least 300ms of post-crash data. Deployment events are locked into memory and cannot be overwritten. Non-deployment events can be overwritten by subsequent deployment or non-deployment events. The oldest non-deployment event will be overwritten first. Some ACMEs stop overwriting of older non-deployment events by more recent non-deployment events after a certain number of events (more than 1000). Under these conditions, the storage of deployment events is still available. The event counter is incremented for each event and stored within the data record.

Deployment events are recorded, when a non-reversible restraint system was commanded to deploy. Recording of non-deployment events requires a minimum delta-V of 8km/h within a 150ms period in either longitudinal or lateral direction. Reversible restraint systems (e.g. active headrests) that have been commanded to deploy also trigger recording of a non-deployment event. Time Zero of an event is determined by the ACM's algorithms based on the acceleration and/or pressure sensors or a deployment command. Post-crash data (e.g. deployment time of restraint systems) is reported relative to Time Zero.

The ACM supports recording of multiple events. In case of a rapid sequence of events (e.g. a combined frontal and side event), the ACM will record the data within a common EDR entry (a so-called parallel event). In this case, the post-crash data is reported relative to Time Zero of the initial event. If the initial event has already ended and another event happens within a time period of 5s from Time Zero of the initial event, the ACM will record a multi-event consisting of two or more separate EDR entries.

If power to the ACM was lost during an event, all or part of the event data record may not have been recorded.

Data:

The reported data elements may vary by vehicle model, model year or vehicle configuration. Part of the pre-crash data has been transmitted to the ACM by various vehicle control modules via the vehicle's communication network.

IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

CDR File Information

User Entered VIN/Frame Number	4T3D6RFV4MU015772
User	NONE
Case Number	NONE
EDR Data Imaging Date	
Crash Date	
Filename	4T3D6RFV4MU015772_ACM 2021 TOYOTA RAV4.CDRX
Saved on	Friday, February 26 2021 at 09:12:17
Imaged with CDR version	Crash Data Retrieval Tool 19.4.2
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.4.2
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	None

Comments

No comments entered.

Data Limitations

CDR Record Information:

- Due to limitations of the data recorded by the airbag ECU, such as the resolution, data range, sampling interval, time period of the recording, and the items recorded, the information provided by this data may not be sufficient to capture the entire crash.
- Pre-Crash data is recorded in discrete intervals. Due to different refresh rates within the vehicle's electronics, the data recorded may not be synchronous to each other.
- Airbag ECU data should be used in conjunction with other physical evidence obtained from the vehicle and the surrounding circumstances.
- If any of the front passenger seat airbags, side airbags, or Curtain Shield Airbags have deployed, data will not be overwritten or deleted by the airbag ECU following that event. If none of the airbags have deployed, the data of that event may be overwritten by a following event even if other airbags (pretensioner, rear seat airbag, etc.) have deployed.
- If power supply to the airbag ECU is lost during an event, all or part of the data may not be recorded.
- "Diagnostic Trouble Codes" are information about faults when a recording trigger is established. Various diagnostic trouble codes could be set and recorded due to component or system damage during an accident.
- The airbag ECU records only diagnostic information related to the airbag system. It does not record diagnostic information related to other vehicle systems.
- The TaSCAN, Global Tech Stream, or Intelligent Tester II devices (or any other Toyota genuine diagnostic tool) can be used to obtain detailed information on the diagnostic trouble codes from the airbag system, as well as diagnostic information from other systems. However, in some cases, the diagnostic trouble codes of the airbag system recorded by the airbag ECU when the event occurred may not match the diagnostic trouble codes read out when the diagnostic tool is used.

General Information:

- The data recording specifications of Toyota's airbag ECUs are divided into the following categories. The specifications for 12EDR or later are designed to be compatible with NHTSA's 49CFR Part 563 rule.
 - 00EDR / 02EDR / 04EDR / 06EDR / 10EDR / 12EDR / 13EDR / 15EDR / 17EDR / 19EDR
- The airbag ECU records data for all or some of the following accident types: frontal crash, rear crash, side crash, and rollover events. Depending on the installed airbag ECU, data for side crash and/or rollover events may not be recorded.
- The airbag ECU has the following recording pages (memory maps) for each accident type to store event data: four pages for frontal/rear/side crash, four pages for a side crash, and two pages for rollover event.
- When a crash impact for a lateral direction is occurred, data may be recorded in a page for frontal/rear/side crash. And additional data may be recorded in a page for side crash.
- The data recorded by the airbag ECU includes correlating information between each previously occurring event (i.e., information that clarifies the collision event sequence. This correlation information consists of the following items.
 - Time from Previous TRG
 - TRG Count
 - Previous Crash Type
- In frontal/rear/side crash events, earlier point in the following is regarded as time zero for the recorded data.
 - the first point where a longitudinal cumulative delta-V of over 0.8 km/h (0.5 mph) is reached
 - the first point where a lateral cumulative delta-V of over 0.8 km/h (0.5 mph) is reached
 In side crash event and rollover event, the point in time at which the recording trigger is established is regarded as time zero for the recorded data.
- The recording trigger judgment threshold value differs depending on the collision type (i.e., frontal crash, rear crash, side crash, or rollover event).
- Some of the data recorded by the airbag ECU is transmitted to the airbag ECU from various vehicle control modules by the vehicle's Controller

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Printed on: Friday, February 26 2021 at 09:13 07

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CDR File Information

User Entered VIN	1HGCV1F12JA171141
User	NONE
Case Number	NONE
EDR Data Imaging Date	
Crash Date	
Filename	1HGCV1F12JA171141_ACM 2018 HONDA ACCORD.CDRX
Saved on	Monday, September 20 2021 at 11:04:21
Imaged with CDR version	Crash Data Retrieval Tool 19.4.2
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.4.2
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	1

Comments

No comments entered.

Data Limitations

General Information:

These limitations are intended to assist you in reading the event data that has been imaged from the vehicle's SRS control unit. They contain general information and are not specific to this particular event. Event data should be considered in conjunction with other available physical evidence from the vehicle and scene.

Honda and Acura passenger vehicles designated as 2013 or later model year production are designed to be compatible with the Bosch CDR tool. Only some 2012 model year vehicles are compatible with the Bosch CDR tool.

Recorded Crash Events:

Data for front, side, rear and rollover events can be recorded as either non-deployment or deployment events. Both types of events can contain pre-crash and crash data.

- A non-deployment event is recorded if the change in longitudinal or lateral velocity equals or exceeds 8km/h over a 150ms timeframe or another type of non-reversible deployable restraint device other than a front, side, or side curtain airbag (e.g. seatbelt pretensioner) is commanded to deploy. Except as indicated below, non-deployment events are not locked into memory and can be over-written by subsequent non-deployment or deployment events.
- A deployment event is recorded if front airbag(s), side airbag(s), or side curtain airbag(s) are commanded to deploy. Deployment events are locked into memory and cannot be over-written.

The SRS control unit typically records only one event. Two events can be recorded if the T0 (time zero) values for each event occur within 5 seconds of each other. Therefore, a non-deployment event can be recorded and locked if it occurs within 5 seconds of a deployment event.

T0 is established by whichever of the following occurs first: (1) the change in longitudinal velocity at the SRS control unit equals or exceeds 0.8km/h over a 20ms timeframe; or (2) the change in lateral velocity at the SRS control unit equals or exceeds 0.8km/h over a 5ms timeframe; or (3) the occupant restraint control algorithm is activated; or (4) a commanded deployment of any type of non-reversible deployable restraint device (e.g. airbag or seatbelt pretensioner). If the time to deploy equals 0, then the command to deploy occurred at T0 or the device was not commanded to deploy during the event.

TEnd (end of event) is established by whichever of the following occurs first: (1) the change in longitudinal and lateral Delta V equals or falls below 0.8km/h over a 20ms timeframe; or (2) the occupant restraint control algorithm resets; or (3) time from T0 exceeds 300ms.

Data:

- Data recorded by the SRS control unit and imaged by the CDR tool is displayed relative to T0, not the time at which the vehicle made contact with another vehicle or object.
- Pre-crash data is recorded at 2 samples per second within the 5 seconds before T0. The sampling point at 0.0 is taken at T0 and is asynchronous with the other sample points. The time between -0.5 and 0.0 is not recorded and is between 1 and 500ms.
- Delta V data is recorded at 100 samples per second from T0 to 250ms or T0 to TEnd plus 30ms.
- Acceleration data is recorded at 100 samples per second from T0 to 250ms.
- Delta V, longitudinal reflects the change in velocity that the SRS control unit experienced in the longitudinal direction during the recorded portion of the event and is not the speed the vehicle was traveling before the event.
- Depending on the severity of the event and the accelerometer characteristics, saturation of the SRS control unit longitudinal or lateral accelerometers may occur, decreasing the recorded Delta V value.

IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

CDR File Information

User Entered VIN	1HGCV1F14JA123298
User	NONE
Case Number	NONE
EDR Data Imaging Date	
Crash Date	
Filename	1HGCV1F14JA123298_ACM 2018 HONDA ACCORD.CDRX
Saved on	Wednesday, October 27 2021 at 13:27:25
Imaged with CDR version	Crash Data Retrieval Tool 19.4.2
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.4.2
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	1

Comments

No comments entered.

Data Limitations

General Information:

These limitations are intended to assist you in reading the event data that has been imaged from the vehicle's SRS control unit. They contain general information and are not specific to this particular event. Event data should be considered in conjunction with other available physical evidence from the vehicle and scene.

Honda and Acura passenger vehicles designated as 2013 or later model year production are designed to be compatible with the Bosch CDR tool. Only some 2012 model year vehicles are compatible with the Bosch CDR tool.

Recorded Crash Events:

Data for front, side, rear and rollover events can be recorded as either non-deployment or deployment events. Both types of events can contain pre-crash and crash data.

- A non-deployment event is recorded if the change in longitudinal or lateral velocity equals or exceeds 8km/h over a 150ms timeframe or another type of non-reversible deployable restraint device other than a front, side, or side curtain airbag (e.g. seatbelt pretensioner) is commanded to deploy. Except as indicated below, non-deployment events are not locked into memory and can be over-written by subsequent non-deployment or deployment events.
- A deployment event is recorded if front airbag(s), side airbag(s), or side curtain airbag(s) are commanded to deploy. Deployment events are locked into memory and cannot be over-written.

The SRS control unit typically records only one event. Two events can be recorded if the T0 (time zero) values for each event occur within 5 seconds of each other. Therefore, a non-deployment event can be recorded and locked if it occurs within 5 seconds of a deployment event.

T0 is established by whichever of the following occurs first: (1) the change in longitudinal velocity at the SRS control unit equals or exceeds 0.8km/h over a 20ms timeframe; or (2) the change in lateral velocity at the SRS control unit equals or exceeds 0.8km/h over a 5ms timeframe; or (3) the occupant restraint control algorithm is activated; or (4) a commanded deployment of any type of non-reversible deployable restraint device (e.g. airbag or seatbelt pretensioner). If the time to deploy equals 0, then the command to deploy occurred at T0 or the device was not commanded to deploy during the event.

TEnd (end of event) is established by whichever of the following occurs first: (1) the change in longitudinal and lateral Delta V equals or falls below 0.8km/h over a 20ms timeframe; or (2) the occupant restraint control algorithm resets; or (3) time from T0 exceeds 300ms.

Data:

- Data recorded by the SRS control unit and imaged by the CDR tool is displayed relative to T0, not the time at which the vehicle made contact with another vehicle or object.
- Pre-crash data is recorded at 2 samples per second within the 5 seconds before T0. The sampling point at 0.0 is taken at T0 and is asynchronous with the other sample points. The time between -0.5 and 0.0 is not recorded and is between 1 and 500ms.
- Delta V data is recorded at 100 samples per second from T0 to 250ms or T0 to TEnd plus 30ms.
- Acceleration data is recorded at 100 samples per second from T0 to 250ms.
- Delta V, longitudinal reflects the change in velocity that the SRS control unit experienced in the longitudinal direction during the recorded portion of the event and is not the speed the vehicle was traveling before the event.
- Depending on the severity of the event and the accelerometer characteristics, saturation of the SRS control unit longitudinal or lateral accelerometers may occur, decreasing the recorded Delta V value.

IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

CDR File Information

User Entered VIN	JA4AZ2A35JZ601152
User	
Case Number	
EDR Data Imaging Date	07/10/2019
Crash Date	
Filename	JA4AZ2A35JZ601152_ACM 2018 MITSUBISHI OUTLANDER.CDRX
Saved on	Wednesday, July 10 2019 at 14:17:06
Imaged with CDR version	Crash Data Retrieval Tool 19.0
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.0
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	Record 1

Comments

No comments entered.

Data Limitations

General Information:

These limitations are intended to assist you to read EDR data from the airbag control unit. They are not intended to provide specific information regarding the interpretation of this data. Event data should be considered in conjunction with other available physical evidence from the vehicle and scene.

Recorded Crash Events:

- A non-deployment event is recorded if the change in longitudinal or lateral velocity equals or exceeds 8km/h over a 150ms timeframe or another type of non-reversible deployable restraint device other than a front, side, or side curtain airbag (e.g. seatbelt pretensioner) is commanded to deploy. Except as indicated below, non-deployment events are not locked into memory and can be over-written by subsequent non-deployment or deployment events.
- A deployment event is recorded if front airbag(s), side airbag(s), or side curtain airbag(s) are commanded to deploy. Deployment events are locked into memory and cannot be over-written.

Data:

- Delta V, longitudinal reflects the change in velocity that the airbag control unit experienced in the longitudinal direction during the recorded portion of the event and is not the speed the vehicle was traveling before the event.
- Speed, vehicle indicated data accuracy can be affected by various factors, including but not limited to the following:
 - Significant changes in tire size from the factory setting
 - Wheel lockup
 - Slip
- Accelerator pedal position, percent full means the ratio of accelerator pedal position compared to the fully depressed position.
- Service brake, on/off means the state of the brake pedal switch.
- Ignition cycle means the number of power cycles applied to the airbag control unit.
- Time to deploy means the elapsed time from crash time zero to the deployment command.
- If airbag or other restraint system is not deployed, time to deploy reports a "0". And if airbag or other restraint system is deployed before cumulative delta-V is reached to Time-Zero thresholds, time to deploy reports a "0".
- Multi-event, number of event reports a "1" in case of single event. In the case of a multiple event, the data from the first event reports a "1". The data from the subsequent event reports a "2".
- Time from event 1 to 2 is reported in 2nd event data in case of a multiple event.
- Complete file recorded reports "Incomp. Record" if power to airbag control unit is lost during an event.
- Acceleration Time-History data is as follows:
 - (1) The Time Step (TS) is 10msec.
 - (2) The number of the first point (NFP) is 0.
 - (3) The number of the last point (NLP) is 25.
- Lateral or Longitudinal acceleration data that exceeds the design range of the sensor is 00G.
- Depending on the vehicle specification, some items may not be recorded. If these items are not recorded, they will be identified in this document.

Data Element Sign Convention:

The following table provides an explanation of the sign notation for data elements that may be included in this CDR report. Directional references to sign notation are from the perspective of the driver when seated in the vehicle facing the direction of forward vehicle travel.

From: Brian from Collision Sciences [bhsu@collisionssciences.ca]
on behalf of Brian from Collision Sciences <bhsu@collisionssciences.ca> [bhsu@collisionssciences.ca]
Sent: 4/29/2020 2:59:30 PM
To: George White [gwhite@hubenterprises.com]
CC: Jason from Collision Sciences [jbayley@collisionssciences.ca]; Lacey Landry [llandry@hubenterprises.com]; Training [Training@hubenterprises.com]
Subject: Re: FW: Case HE-00029 (423870-00) - 2020 Ford Explorer
Attachments: 1FMSK8FH6LGB56713_ACM 2020 Ford Explorer.PDF

Hello George,

Sorry for the late response. Here is the report containing the raw hexadecimal data. Thanks!

Best Regards,

Brian Hsu, P.Eng.
CTO, CollisionSciences.ca
M: 1.647.898.4560
2680 Matheson Blvd E. Suite 102
Mississauga, ON Canada L4W 0A5

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On Tue, Apr 28, 2020 at 9:42 AM George White <gwhite@hubenterprises.com> wrote:

Jason,

This is an Enterprise file and they again requested the Raw Data. Can you assist please.

Thank you,
George White

From: service=collisionssciences.ca@mail.collisionssciences.ca
[mailto:service=collisionssciences.ca@mail.collisionssciences.ca] **On Behalf Of** Collision Sciences
Sent: Wednesday, April 22, 2020 12:39 PM
To: George White <gwhite@hubenterprises.com>
Subject: Case HE-00029 (423870-00) - 2020 Ford Explorer

CrashScan
Accident Detector

Hrg. EX.
121

Thank you for using CrashScan!

Please click on the button below to retrieve the PDF report.

Download
Report

Vehicle
2020 Ford Explorer

Investigator
HUB Enterprises
hubent@collisionssciences.ca

Operating System
Android
Version 1.12

Event Data Recorder
Scan Completed

Emissions Testing
Scan Completed

Enhanced Diagnostics
Scan Completed

The Collision Sciences team is always here to help.
Please contact service@collisionssciences.ca with your questions.

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CDR File Information

User Entered VIN	1FMSK8FH6LGB56713
User	
Case Number	
EDR Data Imaging Date	04/28/2020
Crash Date	
Filename	1FMSK8FH6LGB56713_ACM 2020 FORD EXPLORER.CDRX
Saved on	Tuesday, April 28 2020 at 10:39:34
Imaged with CDR version	Crash Data Retrieval Tool 19.3.1
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.3.1
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
ACM Adapter Detected During Download	No
Event(s) recovered	None

Comments

No comments entered.

The retrieval of this data has been authorized by the vehicle's owner, or other legal authority such as a court order or search warrant, as indicated by the CDR tool user on Tuesday, April 28 2020 at 10:39:34.

Data Limitations

Data Imaging:

CAUTION: When imaging data directly from the RCM on a bench top, make sure the RCM is placed on a flat surface without any movement (static) while connected to and powered by the CDR interface. Not following the above guideline for bench top imaging could risk inducing new events to be recorded in the RCM and possibly overwriting a Non airbag deployment.

Note that the RCM Adapter Detected during Download parameter equal to "Yes" indicates that the EDR data was collected directly from the RCM. When equal to "No", it indicates that the EDR data was collected through the OBD II from the vehicle.

Restraints Control Module (RCM) Recorded Crash Event(s):

The RCM can store up to two crash events. Event types are categorized as follow:

1. Non deployment trigger event is an event in which EDR recording trigger threshold is met or exceeded (minimum of 5 mph (8kph) Accumulated Delta Velocity within 150ms interval), but no device(s) have deployed. The data from such event can be overwritten by subsequent events.
2. Airbag deployment event is an event in which frontal, side or curtain airbags have deployed. Note that such event cannot be overwritten or cleared from the Restraints Control Module (RCM). Once the RCM has deployed any airbag device(s), the RCM must be replaced.
3. Some RCM may also categorize Non airbag deployment event. This type is an event in which non airbag devices such as pretensioners, knee bolster etc... have deployed. Note that such event can be overwritten given a subsequent "deployment" event.

"Time zero" or Event Beginning of any event (First Record or Second Record) is defined as the first Algorithm wake up during that event. So all the Pre-Crash, At Event, Delta V Data, deployment times etc... are relative to "Time zero".

It is possible that conditions in a crash may result in an incomplete event data record.

Hrg. EX.
122

From: Brian from Collision Sciences [bhsu@collisionsscience.ca]
on behalf of Brian from Collision Sciences <bhsu@collisionsscience.ca> [bhsu@collisionsscience.ca]
Sent: 6/1/2020 7:58:10 PM
To: Lacey Landry [llandry@hubenterprises.com]
CC: Jason from Collision Sciences [jbayley@collisionsscience.ca]; George White [gwhite@hubenterprises.com]
Subject: Re: PLEASE REMOVE NAMES FROM MAILING LIST
Attachments: JN8AF5MV3DT207576_ACM 2013 Nissan Juke.PDF

Hello everyone,

Please find the Bosch report for the vehicle attached. Thanks!

Best Regards,

Brian Hsu, P.Eng.
CTO, CollisionSciences.ca
M: 1.647.898.4560
2680 Matheson Blvd E. Suite 102
Mississauga, ON Canada L4W 0A5

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On Mon, Jun 1, 2020 at 3:38 PM Lacey Landry <llandry@hubenterprises.com> wrote:

Jason

That is correct.



Lacey Landry

Marine Unit Manager

Direct Line: 337-330-4247

Tel: 800-873-0933 Ext. 361

Fax: 800-436-4399

P.O. Box 3162, Lafayette, LA 70502

llandry@hubenterprises.com

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Hrg. EX.
123

From: Jason from Collision Sciences [mailto:jbayley@collisionosciences.ca]
Sent: Monday, June 1, 2020 2:37 PM
To: Lacey Landry <llandry@hubenterprises.com>
Cc: Brian from Collision Sciences <bhsu@collisionosciences.ca>; George White <gwhite@hubenterprises.com>
Subject: Re: PLEASE REMOVE NAMES FROM MAILING LIST

Hi George,

You want the Bosch CDR report for this one?

Claim number – 255479-GK 2013 Nissan Juke

HE-00023

JN8AF5MV3DT207576

Jason Bayley, P.Eng.
Collision Sciences | CEO & Founder
M: +1 905 599 9899
www.collision-sciences.com | [CrashScan™ on Android and iOS](#) | [EDR Vehicle Support](#)

Collision Sciences Inc. (CSI) is a global technology and information provider that enables insurance carriers and corporations significant financial and operational benefits through scaled access and intelligent application of vehicle accident data including "black box" pre-crash data, biomechanical injury severity data, diagnostic repair data, and reconstructed motor incident data. CSI offers a universal, mobile-app-based EDR (Event Data Recorder) tool, and is the only market option that offers affordable hardware, included user training, dedicated client centric data collection, customizable cloud data analysis, strategic alerting and reporting, and engineering tech support for users.

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On Mon, Jun 1, 2020 at 3:34 PM Lacey Landry <llandry@hubenterprises.com> wrote:

Brian/Jason

The Client is asking for the raw data on this one. Can we get a copy of that?



Lacey Landry

Marine Unit Manager

Direct Line: 337-330-4247

Tel: 800-873-0933 Ext. 361

Fax: 800-436-4399

P.O. Box 3162, Lafayette, LA 70502

llandry@hubenterprises.com

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From: Brian from Collision Sciences [mailto:bhsu@collisionssciences.ca]

Sent: Tuesday, March 31, 2020 5:57 PM

To: Jason from Collision Sciences <jbayley@collisionssciences.ca>

Cc: George White <gwhite@hubenterprises.com>; Lacey Landry <llandry@hubenterprises.com>

Subject: Re: PLEASE REMOVE NAMES FROM MAILING LIST

Hello everyone,

I am attaching the revised PDF report with the claim number added. Thanks!

Best Regards,

Brian Hsu, P.Eng.

CTO, CollisionSciences.ca

M: [1.647.898.4560](tel:16478984560)

2680 Matheson Blvd E. Suite 102

Mississauga, ON Canada L4W 0A5

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On Tue, Mar 31, 2020 at 6:49 PM Jason from Collision Sciences <jbayley@collisionssciences.ca> wrote:

Okay, I'm copying Brian, he can attach the modified report.

Jason Bayley, P.Eng.

Collision Sciences | CEO & Founder

M: +1 905 599 9899

jbayley@collisionssciences.ca | www.collisionssciences.ca

On Tue., Mar. 31, 2020, 6:45 p.m. George White, <gwhite@hubenterprises.com> wrote:

No, We need a copy of the report you put the claim number on for us.

Claim number – 255479-GK 2013 Nissan Juke

HE-00023

JN8AF5MV3DT207576

From: Jason from Collision Sciences [mailto:jbayley@collisionsciences.ca]

Sent: Tuesday, March 31, 2020 5:43 PM

To: George White <gwhite@hubenterprises.com>

Cc: Lacey Landry <llandry@hubenterprises.com>

Subject: Re: PLEASE REMOVE NAMES FROM MAILING LIST

Yes, what's the request?

Remove the vehicle value section?

Jason Bayley, P.Eng.

Collision Sciences | CEO & Founder

M: +1 905 599 9899

jbayley@collisionsciences.ca | www.collisionsciences.ca

On Tue., Mar. 31, 2020, 6:05 p.m. George White, <gwhite@hubenterprises.com> wrote:

Jason,

Can we get a revised report on this one?

From: Jason from Collision Sciences [mailto:jbayley@collisionsciences.ca]

Sent: Monday, March 30, 2020 4:35 PM

To: George White <gwhite@hubenterprises.com>

Cc: Lacey Landry <llandry@hubenterprises.com>

Subject: Re: PLEASE REMOVE NAMES FROM MAILING LIST

The Claim Number has been updated.

Nice to hear you got Nationwide trialing it!

Jason

On Mon, Mar 30, 2020 at 5:07 PM George White <gwhite@hubenterprises.com> wrote:

Claim number – 255479-GK

Can you put it on the report please.

From: Jason from Collision Sciences [mailto:jbayley@collisionsciences.ca]

Sent: Monday, March 30, 2020 3:51 PM

To: George White <gwhite@hubenterprises.com>

Subject: Re: PLEASE REMOVE NAMES FROM MAILING LIST

Question, just had a scan... wondering if it is HUB or AmFam. The app version was too old for user to select a company.

2013 Nissan Juke

HE-00023

JN8AF5MV3DT07576

Jason Bayley, P.Eng.

Collision Sciences | CEO & Founder

M: +1 905 599 9899

jbayley@collisionsciences.ca | www.collisionsciences.ca

On Mon., Mar. 30, 2020, 4:47 p.m. Jason from Collision Sciences, <jbayley@collisionsciences.ca> wrote:
On it.

Jason Bayley, P.Eng.

Collision Sciences | CEO & Founder

M: +1 905 599 9899

jbayley@collisionsciences.ca | www.collisionsciences.ca

On Mon., Mar. 30, 2020, 4:33 p.m. George White, <gwhite@hubenterprises.com> wrote:

Jason,

Can you please remove Danielle Matthews (dmatthews@hubenterprises.com) from the mailing list for all EDR's.

Thank you,

George L. White

***Training / Recruiting
Manager***

Hub Enterprises, Inc.

P 337-330-4240

POB 3162, Lafayette,
LA 70502

gwhite@hubenterprises.com

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--

Jason Bayley, P.Eng.

Collision Sciences | CEO & Founder

M: +1 905 599 9899

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CDR File Information

User Entered VIN	JN8AF5MV3DT207576
User	
Case Number	
EDR Data Imaging Date	06/01/2020
Crash Date	
Filename	JN8AF5MV3DT207576_ACM 2013 NISSAN JUKE_CDRX
Saved on	Tuesday, March 31 2020 at 22:55:20
Imaged with CDR version	Crash Data Retrieval Tool 19.4
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.4
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	Event Record 1

Comments

No comments entered.

Data Limitations

General Information:

Data limitations are intended to assist in reading event data that has been imaged from the vehicle's Air bag Control Unit (ACU). Event data should be considered in conjunction with other available physical evidence from the vehicle and scene.

Airbag Control Unit (ACU)

- The Air bag Control Unit (ACU) can store two types of events: Non-Deployment Events and Deployment.
 - A Non-Deployment Event is a crash or other physical occurrence which causes the ACU algorithm to be activated, but in which deployment thresholds are not reached.
 - A Deployment Event is a crash or other physical occurrence which causes ACU deployment thresholds to be reached or exceeded. Depending on the vehicle model, one or more of the following may be activated during a Deployment Event: front air bags, seat-mounted side airbags, roof-mounted or door-mounted curtain air bags, pretensioners, or pop-up roll bars.
- The ACU can record up to two events. If additional events occur subsequently, the older of the two events already recorded (i.e. the one which occurred first) is overwritten.
 - A Non-Deployment Event can be overwritten by another Non-Deployment event, or by a Deployment Event.
 - A Deployment Event has higher priority than a Non-Deployment Event, and cannot be interrupted or overwritten by another event.
 - The data pertaining to a Deployment Event is locked after being recorded. However, a second event can still be recorded subsequently in the portion of the event memory which is not locked.
- Event data includes both pre-crash data and crash data.
 - If the power supply to the ACU is lost during an event, all or part of the event data may not be recorded.
 - In addition to the recording of event data, the ACU has the ability to perform diagnostics and record Diagnostic Trouble Codes (DTCs).

Data Element Sign Convention:

The following table provides an explanation of the sign convention for data elements in the CDR report.

Data Element Name	Positive Sign Notation Indicates
Longitudinal Acceleration	Forward
Delta-V, Longitudinal	Forward
Maximum Delta-V, Longitudinal	Forward
Lateral Acceleration	Left to Right
Delta-V, Lateral	Left to Right
Maximum Delta-V, Lateral	Left to Right
Vehicle Roll Angle	Left to Right Rotation
Steering Input	Left Turn

- "Life Time Counter (sec)" indicates the elapsed time, in seconds, from the vehicle's first ignition activation until the start of the first recorded event. The counter is incremented whenever the vehicle's ignition is on. The counter is reset to 0 if the ACU is replaced.
- "Complete File Recorded" indicates whether a complete EDR data set has been stored after the event. "Yes" indicates that a complete data set has been recorded. "No" indicates that only a portion of the data set has been recorded, for example due to the power to the ACU being lost

From: Brian from Collision Sciences [bhsu@collisionosciences.ca]
on behalf of Brian from Collision Sciences <bhsu@collisionosciences.ca> [bhsu@collisionosciences.ca]
Sent: 1/10/2020 1:01:04 PM
To: Jason from Collision Sciences [jbayley@collisionosciences.ca]
Subject: Re: Case AF-01195 (01-002-099759) - 2012 Nissan VERSA
Attachments: 3N1BC1CP5CK812635_ACM 2012 Nissan Versa.PDF

Sending along the generated Bosch report.

Best Regards,

Brian Hsu, P.Eng.
CTO, CollisionSciences.ca
M: 1.647.898.4560
2680 Matheson Blvd E. Suite 102
Mississauga, ON Canada L4W 0A5

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On Thu, Jan 9, 2020 at 3:32 PM Brian from Collision Sciences <bhsu@collisionosciences.ca> wrote:
Jason,

Got a problem on this one.

I generated a Bosch CDR report and it showed a maximum delta-V of +13 km/h in both events. However, in both cases, frontal airbags deployed, and I do not think a rear-end event of 13 km/h would trigger frontal airbags to deploy. Our report says that both events would have a delta-V of -13 km/h.

I checked the course notes and found the following slide:

<p>Hrg. EX. 124</p>

Nissan Polarity Issues Fixed?

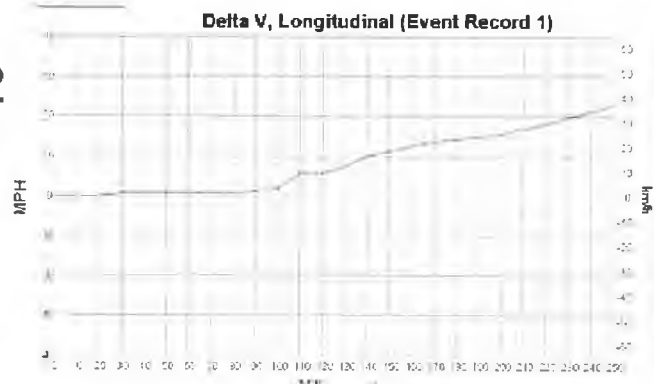
Some exceptions still reported

2013 Altima in CDR 12.2

System Status at Event (Event Record 1)

Maximum Delta-V, Longitudinal (MPH [km/h])	29 [47]
Time, Maximum Delta-V, Longitudinal (msec)	300
Maximum Delta-V, Lateral (MPH [km/h])	5 [8]
Time, Maximum Delta-V, Lateral (msec)	210
Maximum Acceleration, Longitudinal (g)	32.5
Time, Maximum Acceleration, Longitudinal (msec)	102.5
Maximum Acceleration, Lateral (g)	36
Time, Maximum Acceleration, Lateral (msec)	112.5

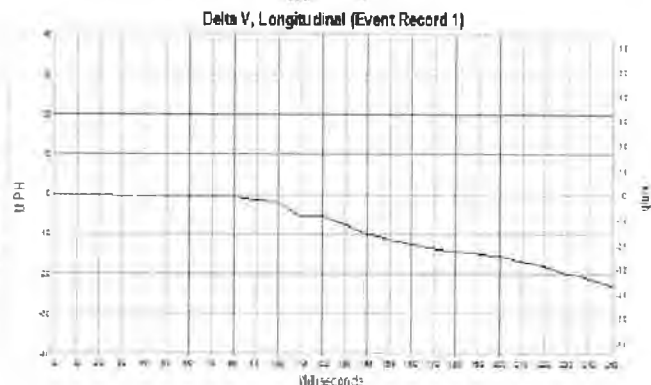
+29 at 300ms



2013 Altima in CDR 16.5

Maximum Delta-V, Longitudinal (MPH [km/h])	-29 [-47]
Time, Maximum Delta-V, Longitudinal (msec)	300
Maximum Delta-V, Lateral (MPH [km/h])	5 [8]
Time, Maximum Delta-V, Lateral (msec)	210
Maximum Acceleration, Longitudinal (g)	-32.5
Time, Maximum Acceleration, Longitudinal (msec)	102.5
Maximum Acceleration, Lateral (g)	36
Time, Maximum Acceleration, Lateral (msec)	112.5

-29 at 300ms



Note that this Versa is among the earliest supported Nissan modules. There may be a bug in the CDR.

Since the most recent event was 5 ignition cycles ago, I believe there was an actual collision for this claim. Is there anyway we can ask AmFam where the vehicle was actually hit?

Thanks!

Best Regards,

Brian Hsu, P.Eng.

CTO, CollisionSciences.ca

M: 1.647.898.4560

2680 Matheson Blvd E. Suite 102

Mississauga, ON Canada L4W 0A5

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----- Forwarded message -----

From: **Collision Sciences** <service@collisionsciences.ca>

Date: Thu, Jan 9, 2020 at 1:58 PM

Subject: Case AF-01195 (01-002-099759) - 2012 Nissan VERSA

To: <bhsu@collisionsciences.ca>

CrashScan

Accident Detector

Thank you for using CrashScan!

Please click on the button below to retrieve the PDF report.

View Report

Release Report

Vehicle

2012 Nissan VERSA
3N1BC1CP5CK812635

Investigator

Nathan Taarud
ntaarud@amfam.com
+1-605-759-6013

Operating System
iOS

Event Data Recorder
Scan Completed

Emissions Testing
Scan Completed

Enhanced Diagnostics
Unsupported

[Submit Request for Additional Review](#)

The Collision Sciences team is always here to help.
Please contact service@collisionsciences.ca with your questions.

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CDR File Information

User Entered VIN	3N1BC1CP5CK812635
User	
Case Number	
EDR Data Imaging Date	01/09/2020
Crash Date	
Filename	3N1BC1CP5CK812635_ACM 2012 NISSAN VERSA.CDRX
Saved on	Thursday, January 9 2020 at 14:28:27
Imaged with CDR version	Crash Data Retrieval Tool 19.2
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.2
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	Event Record 1, Event Record 2

Comments

No comments entered.

Data Limitations

General Information:

Data limitations are intended to assist in reading event data that has been imaged from the vehicle's Air bag Control Unit (ACU). Event data should be considered in conjunction with other available physical evidence from the vehicle and scene.

Airbag Control Unit (ACU)

- The Air bag Control Unit (ACU) can store two types of events: Non-Deployment Events and Deployment.
 - A Non-Deployment Event is a crash or other physical occurrence which causes the ACU algorithm to be activated, but in which deployment thresholds are not reached.
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- The ACU can record up to two events. If additional events occur subsequently, the older of the two events already recorded (i.e. the one which occurred first) is overwritten.
 - A Non-Deployment Event can be overwritten by another Non-Deployment event, or by a Deployment Event.
 - A Deployment Event has higher priority than a Non-Deployment Event, and cannot be interrupted or overwritten by another event.
 - The data pertaining to a Deployment Event is locked after being recorded. However, a second event can still be recorded subsequently in the portion of the event memory which is not locked.
- Event data includes both pre-crash data and crash data.
 - If the power supply to the ACU is lost during an event, all or part of the event data may not be recorded.
 - In addition to the recording of event data, the ACU has the ability to perform diagnostics and record Diagnostic Trouble Codes (DTCs).

Data Element Sign Convention:

The following table provides an explanation of the sign convention for data elements in the CDR report.

Data Element Name	Positive Sign Notation Indicates
Longitudinal Acceleration	Forward
Delta-V, Longitudinal	Forward
Maximum Delta-V, Longitudinal	Forward
Lateral Acceleration	Left to Right
Delta-V, Lateral	Left to Right
Maximum Delta-V, Lateral	Left to Right
Vehicle Roll Angle	Left to Right Rotation
Steering Input	Left Turn

Hrg. EX.
125

- "Life Time Counter (sec)" indicates the elapsed time, in seconds, from the vehicle's first ignition activation until the start of the first recorded event. The counter is incremented whenever the vehicle's ignition is on. The counter is reset to 0 if the ACU is replaced.
- "Complete File Recorded" indicates whether a complete EDR data set has been stored after the event. "Yes" indicates that a complete data set

From: Jason from Collision Sciences [jbayley@collisionssciences.ca]
on behalf of Jason from Collision Sciences <jbayley@collisionssciences.ca> [jbayley@collisionssciences.ca]
Sent: 8/22/2019 8:34:34 PM
To: Mike Conlon [Mike.Conlon@theguarantee.com]
CC: Mark Weir [mweir@lcm solutions.ca]; Gregory Fickling [Gregory.Fickling@theguarantee.com]; chad.zinn@collisionssciences.ca; Marika Walker [Marika.Walker@theguarantee.com]; Steve Bloomfield [Steve.Bloomfield@theguarantee.com]
Subject: Re: CSI - Metrics, data, workflow and reporting
Attachments: [Case GC-00068] 20190819 Claims 2010 Toyota RAV4.pdf; 2T3BF4DV8AW038450_ACM 2010 Toyota RAV4.PDF

Hi Mike,

I'm attaching the Rav4 report(s). I've included the Bosch CDR report because its interesting (and we haven't yet decoded in our Claims Report to account for 46 collisions).

Enjoy.

Best Regards,

Jason Bayley, P.Eng.
CEO/Founder, CollisionSciences.ca
M: [1.905.599.9899](tel:19055999899)
2680 Matheson Blvd E. Suite 102
Mississauga, ON Canada L4W 0A5

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On Thu, Aug 22, 2019 at 4:25 PM Mike Conlon <Mike.Conlon@theguarantee.com> wrote:

Hello Jason ,

If you could pull the complete report , please go ahead and send to us. We have a cushion now. Thanks



Mike Conlon , BA,FCIP,CRM
Vice President Claims , Woodstock Branch,

The Guarantee Company of North America
954 Dundas Street East ,
Woodstock , ON , N4S 7Z9

Hrg. EX. 126

T 519.539.9868 Ext.22600

1.800.361.7096

mike.conlon@theguarantee.com

From: Jason from Collision Sciences <jbayley@collisionsciences.ca>

Sent: Thursday, August 22, 2019 4:22 PM

To: Mark Weir <mweir@lcm solutions.ca>

Cc: Gregory Fickling <Gregory.Fickling@theguarantee.com>; chad.zinn@collisionsciences.ca; Mike Conlon <Mike.Conlon@theguarantee.com>; Marika Walker <Marika.Walker@theguarantee.com>; Steve Bloomfield <Steve.Bloomfield@theguarantee.com>

Subject: Re: CSI - Metrics, data, workflow and reporting

Hi GC Team,

Just heard about the potential fraud already detected... great news!

I want to point out another file with interesting data: the Toyota Rav4 scan earlier this week had unusual data and the preview required some manual decoding on our end (so you may not have seen anything when clicking on the link initially). The interesting about this crash data report is that we detected **46 minor collision events** - indicative of maybe off-road driving or consistent pothole/curb strikes. Interesting - but dependent on the claim and claimed damages. For your reference, here is the preview:

https://secure.collisionsciences.ca/api/dashboard/preview_report?id=MIQzQkY0RFY4QVcwMzg0NTA=

Best Regards,

Jason Bayley, P.Eng.

CEO/Founder, CollisionSciences.ca

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On Wed, Aug 14, 2019 at 12:07 PM Jason from Collision Sciences <jbayley@collisionsciences.ca> wrote:

Hi Greg & Team,

Mgmt Report

Hoped to provide this report yesterday but it needed some customization. You've had 3 vehicles with stored crash data so far - and I see you just downloaded that Jeep. Statistically, I think you should see high % of captured data. Note that below the "View Report" link, we've highlighted scans of interest with "Crash Data" - meaning pre-crash data and severity will be in the report, as well as scans with "DTCs". We could also automatically highlight scans by Claim Type, such as with reported injury (LVI use case) with a little coordination from your IT or via Guidewire.

The report is in PDF now, but I'll be providing a secure link to generate this report in real time (web and pdf).

Regarding the "Dash" in the claim numbers, we'll be able to correct this by the next app update. Bare with us...

Best Regards,

Jason Bayley, P.Eng.
CEO/Founder, CollisionSciences.ca
M: [1.905.599.9899](tel:19055999899)
2680 Matheson Blvd E. Suite 102
Mississauga, ON Canada L4W 0A5

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On Mon, Aug 12, 2019 at 5:03 PM Jason from Collision Sciences <jbayley@collisionosciences.ca> wrote:
Hi Greg,

We can keep the emails from scans going for now, for your early interest, but we won't spam you forever - we have some ideas for your group's setup.

For example, we could deliver a daily summary email each morning, which can include a hyperlink to the Management Report, which provides a better overview and Claim Numbers.

I'll send you a Management Report tomorrow.

Best Regards,

Jason Bayley, P.Eng.
CEO/Founder, CollisionSciences.ca
M: [1.905.599.9899](tel:19055999899)
2680 Matheson Blvd E. Suite 102

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On Mon, Aug 12, 2019 at 4:42 PM Mark Weir <mweir@lcmsolutions.ca> wrote:

First question for you is are you ok with a hard edit in the preview form? I believe I saw that Jason said they could modify to do this.

I would recommend this (although sometimes you want to have more flexibility). I am sure that Jason could also limit the character space to reduce garbage in garbage out.

Re all preview reports, you should be able to see by day the links for the reports downloaded however I am not certain how CSI is presenting this to you at the moment.

In fact the best scenario would be to have the report and set the date parameters to look at what was downloaded and by whom in a given date.

I am sure there may be some items that will take a wee bit of time to design.

Mark Weir
Partner & Managing Director
LCM Solutions, Inc.
905.506.5564

On Aug 12, 2019, at 4:28 PM, Gregory Fickling <Gregory.Fickling@theguarantee.com> wrote:

Hi Mark,

We are starting to gather the data. I believe we have received 4 reports today but until the claim numbers are added I can't reference our files to determine which scans we are interested in looking at.

A hyperlink may be the best tool so that one of us can review all scans initially

Regards,

<image001.png>

<image002.png>T : 519 539 9868 x 22601 | 1 800 265 4262

Gregory Fickling

954 Dundas Street East, Woodstock, ON N4S 7Z9

Auto PD and Transportation Claims
Manager

gregory.fickling@theguarantee.com

<image003.jpg> <image004.jpg>

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From: Mark Weir <mweir@lcmsolutions.ca>

Sent: August-12-19 4:20 PM

To: Gregory Fickling <Gregory.Fickling@theguarantee.com>

Cc: chad.zinn@collisionsciences.ca; Mike Conlon <Mike.Conlon@theguarantee.com>

Subject: CSI - Metrics, data, workflow and reporting

Hi Greg,

Looks like your starting to gather some new data and information. Let me know when you would like to get together to review some of the outcomes and if you need some support from an operational side, happy to assist.

Thank you.

Mark Weir, CIP, CRM
Managing Director

1.905.506.5564

mweir@lcmsolutions.ca

www.lcmsolutions.ca

<image005.png>



Collision Sciences CLAIMS REPORT

EXPOSURE, RISK & DECISION SUPPORT

Claim Number: 11111-7780

Vehicle: 2010 Toyota RAV4

VIN: 2T3BF4DV8AW038450

Report Number: GC-00068

Generated: 2019-08-22 20:32:14



REPORT SUMMARY

This section provides an overview of the predictive analytics used for the estimation of claim severity, exposure, and fraud risk for the most recent crash or event sequence.



Occupant Injury Risk

A moderate frontal crash was detected by the Event Data Recorder. Note that event recency data based on engine starts is not supported for this EDR. If the detected event is related to the claim in question, the mean acceleration in the impact was 1.07 g.

If a more recent low velocity event occurred, the estimated mean acceleration in the impact would be 1.51 g or less.

Studies have found that for collisions in which the mean deceleration is 2.5 g or less, occupants in struck (target) vehicles have reported suffering soft tissue symptoms for approximately 24 hours. Occupants in striking (bullet) vehicles typically report no symptoms. No study to date has found that minor soft tissue symptoms persist for more than one month for mean accelerations below 3 g.



Pre-Crash Data

The following reconstruction data analysis relates to the moderate frontal crash that was detected by the Event Data Recorder (note that event recency data based on engine starts is not supported for this EDR):

Within the 5.0 seconds of recorded pre-impact data for the most recent crash, the recorded speed range on this vehicle was **22 km/h to 32 km/h**. The vehicle speed was **24 km/h** at the moment of impact.

Driver/Vehicle Maneuver:
Accelerating up to impact



Flags / Loss Indicators

High Risk (3 Alerts): Possible Intentional Damage, Pre-Damaged Vehicle (Rollover, Rear, Right, Left), Low Velocity Impact



Diagnostic Scan Results

- ✓ Event Data Recorder: Scan Completed Successfully
- ✓ No Issues Found



Safety Issues / Ratings

- ✗ 8 Potential Recalls Found. Safety Ratings Alerts: Acceptable Rating for Rollover.



Recommended Action

If injury reported beyond one month, consider further investigation. Check reported circumstances. Otherwise, the crash severity may have been below the recording threshold.



CRASH DATA RECORDS

This section lists crash data records stored on the vehicle's event data recorder. The date of crash data collection was 2019-08-19.

Recency / Sequence	Crash Severity	Type / Damage Area	Sudden Speed Change (Delta-V)	Force of Impact (Mean g-Force)	Direction of Force	Engine Starts Since Event
Most Recent	Moderate, Low-speed Impact	Front	-8.25 km/h (Decreasing)	1.07 g	0 degrees (12 o'Clock)	N/A
1st Prior	Negligible	Roll Motion	-5.83 deg (N/A)	N/A	N/A	N/A
2nd Prior	Negligible Severity	Rear	2.34 km/h (Increasing)	0.37 g	180 degrees (6 o'Clock)	N/A
3rd Prior	Negligible Severity	Right	-1.66 km/h (Increasing)	N/A	90 degrees (3 o'Clock)	N/A
4th Prior	Negligible Severity	Left	2.28 km/h (Increasing)	N/A	270 degrees (9 o'Clock)	N/A

How To Interpret This Information

This vehicle is supported for recording crash event records. Note that event recency data based on engine starts is not supported for this EDR. If the recency of this event is inconsistent with a more recent low-velocity collision claim currently under investigation, the following information will be applicable:

If the vehicle has structural crush damage, this may indicate one of the following scenarios:

1. The vehicle was switched off or parked at the time of the impact
2. The impact severity failed to meet the minimum required threshold for the EDR to record

EDRs calculate the Delta-V (the sudden change in velocity), by integrating accelerometer data after being triggered at a predefined threshold, which can vary by manufacturer.

For Toyota, a front/rear (longitudinal) or side (lateral) acceleration recording is expected to be triggered when the cumulative delta-v is over 8.00 km/h, where the time series data will be recorded for up to 250 ms (sampled at 100 times per second).

Collision Sciences maintains a database of crash data, through which the following trigger thresholds are known for Toyota vehicles:

Longitudinal (Front/Rear): 8.00 km/h within 150 ms, or 1.51 g.

Lateral (Side): 8.00 km/h within 150 ms, or 1.51 g.

If a recent Low Velocity Impact occurred, the overall transfer of forces to the occupant are expected to have been below the known EDR trigger thresholds. In this situation, consider further investigation, such as an IMF (Independent Medical Examination).

An EDR (Event Data Recorder) is a function or device installed in a motor vehicle to record technical information about the status and operation of vehicle systems for a few seconds immediately before and during a crash for the primary purpose of post-crash assessment [1]. EDRs are regulated under 49 CFR part 563. Part 563 was established on August 28, 2006 (71 FR 50998) and requires that light vehicles [2] equipped with EDRs meet certain requirements for data elements, data capture and format, data retrieval, and data crash survivability. An EDR as defined by Part 563 is not required to record data such as audio or video

recordings and does not log commercial operator-associated data, such as hours of service [3]. The requirements of Part 563 apply only to those light vehicles that are voluntarily equipped with EDRs that were manufactured on or after September 1, 2012.



PRE-CRASH DATA / Most Recent

This section lists pre-crash data records stored on the vehicle's event data recorder.

Time Before Impact (sec)	Distance to Impact (m)	Vehicle Speed (km/h)	Engine Speed (RPM)	Accelerator Pedal (%)	Brake Status	Deceleration (g)
-5.0	N/A	32	800	0.0	On	N/A
-4.0	26.4	30	800	0.0	On	-0.1 (Light)
-3.0	18.9	24	800	0.0	On	-0.2 (Light)
-2.0	12.5	22	800	0.0	Off	-0.1 (Light)
-1.0	6.4	22	2000	0.0	On	0.0 (Light)
0.0	0.0	24	2000	0.0	On	N/A



PRE-CRASH DATA / 1st Prior

This section lists pre-crash data records stored on the vehicle's event data recorder.

Time Before Impact (sec)	Distance to Impact (m)	Vehicle Speed (km/h)	Engine Speed (RPM)	Accelerator Pedal (%)	Brake Status	Deceleration (g)
-5.0	N/A	28	800	0.0	Off	N/A
-4.0	23.9	28	800	0.0	On	0.0 (Light)
-3.0	16.4	26	400	0.0	On	-0.1 (Light)
-2.0	10.0	20	400	0.0	On	-0.2 (Light)
-1.0	4.7	18	400	0.0	On	-0.1 (Light)
0.0	0.0	16	400	0.0	On	-0.1 (Light)

How To Interpret This Information

Each pre-crash data set contains recorded vehicle operating status 5.0 seconds prior to impact. Accelerator Pedal, Brake Switch Status, and Steering Angle can be used to reconstruct the driver's maneuver leading up to the impact.

Deceleration (in g) is calculated using speed differences between data points. Note that deceleration depends heavily on road conditions. For example, in winter driving conditions, it may only be possible to reach a peak deceleration of 0.2g.



SEAT BELT & AIRBAG STATUS (Most Recent Crash)

This section lists the restraint system status at the time of the event recording, including airbag deployment status and the seatbelt buckle insertion status for supported seating positions.

Seating Position	Driver	Front Passenger
Occupant Classification	✓ Occupied	✗ Unoccupied
Safety Belt Status	✓ Buckled	✗ Unbuckled
Frontal Airbag	✓ Not Deployed	✓ Not Deployed
Side Seat Airbag	– Unavailable	– Unavailable
Side Curtain Airbag	– Unavailable	– Unavailable
Knee Airbag	– Unavailable	– Unavailable



FLAGS / LOSS INDICATORS

This section lists flags for further investigation based on known anti-fraud indicators and/or inconsistencies with reported circumstances.

Indicator	Description	Risk Alert
Drive Down	Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.	No
No Avoidance Maneuver	No driver input for either brake or steering maneuver within the 2 seconds prior to impact.	No
Possible Distracted Driver	In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.	No
No Pre-Impact Speed Reduction	Brake is only applied lightly with no meaningful reduction in speed.	No
Steered-To Sideswipe	Driver steers either left or right, causing an impact on the steered-to side.	N/A
Swoop & Squat	Driver steers to make a lane change and quickly applies brakes.	N/A
Panic Stop	Rear-end collision where driver brakes just prior to impact.	No
Possible Non-Recent Event	Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval. Possible issues include: unrelated damage, past posting (no insurance at time of collision)	N/A
Possible Intentional Damage	Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.	Yes
Pre-Damaged Vehicle	Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include: Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.	Yes
Unbuckled Driver	Driver not wearing seat belt at the time of crash data recording.	No

Unbuckled Passenger	Front passenger not wearing seat belt at the time of crash data recording.	No
Emissions Test Failure	Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).	No
Low Velocity Impact	An impact in which the mean acceleration is below 3.0 g	Yes

Reported Circumstances

The flags in this section are generated through cross-referencing provided information (if any).

Indicator	Description	Diagnostic and Predictive Data	Reported Info
Reported Number of Occupants	Compares the reported number of occupants to the available seat sensor data.	1	N/A
Reported Maximum Pre-Impact Speed	Compares the reported travel speed with the pre-crash data and flags a variance of 10 km/h.	32	N/A
Reported Impact Speed	Compares the reported impact speed with the pre-crash data and flags a variance of 10 km/h.	24	N/A
Reported Pre-Impact Maneuver Variance	Compares the reported pre-impact motion with pre-crash data and impact angle for consistency.	Accelerating up to impact	N/A
Reported Appraisal Variance	Compares a provided appraisal estimate with the AI estimate and flags an appraisal variance of +15%.	4864	N/A
Reported Airbag Deployment Variance	Determines whether airbags were manually removed to exaggerate damage by comparing recorded airbag deployment status.	Not Deployed	N/A
VIN Mismatch	Compares the VIN diagnostically retrieved from the vehicle to the VIN sticker or provided VIN. Requires claim reference number.	2T3BF4DV8AW038450	N/A
Image Integrity	Utilizes algorithms to identify digitally edited or altered parts in provided photographs.	N/A	N/A
Pre-Accident Vehicle Sale Attempt	VIN identified in online classifieds within the last 6 months.	N/A	N/A

1ST PARTY / INJURY SEVERITY & DURATION



This section predicts occupant injury risk ranging from minor to moderate/serious injury for frontal/side/rear collisions. The injury risk is the statistical incidence, likelihood, and probability of injury as tracked in real-world crash studies using event data recorders. The model uses a regression model of crash severity versus reported injuries as published in scientific studies.

Assumed delta-V: 8.25 km/h

Occupant Detail	Statistical Likelihood of Minor Injury Symptoms (lasting 2 days to 2 weeks)	Statistical Likelihood of Moderate Injury (lasting 5 to 6 weeks)	Risk of Serious Injury
-----------------	-----------------------------------------------------------------------------	------------------------------------------------------------------	------------------------

How To Interpret This Information

On a balance of probabilities, if the likelihood of injury occurrence is below 50%, it is suggested that an injury is more likely not to have occurred. With a high risk of whiplash or other injury, the claim can be expedited. Early treatment is often effective in providing the best probable outcome for patient recovery.

The injury prediction is based on the actual incidence rate or proportion of injury in tracked studies using data from real-world outcomes. The most important factor in predicting the risk of injury or death in a vehicle crash is the crash severity, which is expressed as the velocity change, or Delta-V, experienced by the vehicle during the crash. The Crash Investigation Sampling System (CISS) is the largest database in the world with over 100,000 cases linking injury outcomes with Delta-Vs, which are obtained from field reconstructions. The effects of occupant age, gender, and belt use on injury and fatality risk have been found substantial.

Low Velocity Impact Studies

Delta-V (Change in Velocity) has traditionally been used to correlate crash severity with the risk of occupant injury (Augenstein et al., 2003; Bahouth et al., 2004; Sunnevång et al., 2009; Kononen et al., 2011). Injury tolerance and risk for various injury types based on real-world crashes with recorded crash data have been established (Gabauer and Gabler, 2006; Gabauer and Gabler, 2008; Kullgren and Krafft, 2008; Ydenius, 2010).

Large-scale retrospective studies have also examined the relationship between minor severity crashes and the risk of occupant whiplash complaints, including studies in the U.S. (Tencer et al., 2001), Germany (Eis et al., 2005; Hell et al., 2002) and Sweden (Krafft et al., 2005). In the minor severity studies it was found that occupant's reporting symptoms for greater than one month corresponded to an average delta-V of 12.4 +/- 2.9 mph and a mean acceleration of 5.3 +/- 0.6 g. Occupants that sustain soft tissue symptoms for less than one month, on average, corresponded to a delta-V of 6.4 +/- 1.3 mph and a mean acceleration of 3.9 +/- 0.5 g. The mean acceleration was found to be the best predictor for duration of symptoms.

The following studies describe the impact severity when no injury or only short-term consequences occur: Hell and Langwieder (1998) found that most occupants sustained short-term symptoms in impacts where the change of velocity was 10-15 km/h (6.2-9.3 mph). McConnell et al (1995) performed low-speed rear impacts with seven male volunteers, with velocity changes of up to 10.9 km/h (6.77 mph). None of the volunteers reported whiplash symptoms after a few days. Ono and Kaneoka (1997) and Siegmund et al (1997) found similar results from volunteer tests. In another study with volunteers (Eichberger et al 1996), where the sled impact velocities were 8-11 km/h (4.9-6.8 mph) and the mean deceleration 2.5 g, the volunteers suffered whiplash symptoms for approximately 24 hours.

Typical G-forces (Tolerance)

A hard acceleration or deceleration in a vehicle produces a sustained g-force in the range of 0.6 to 0.8 g. In everyday life, humans experience g-forces stronger than 1 g. The steep ascent of an Airbus A-300 would produce 1.8 g. A sneeze results in about 3 g of acceleration and typical cough produces a momentary force of 3.5 g. A luge athlete may experience forces of 5.2 g. Roller coasters are usually designed not to exceed 3 g but are known to reach 6.3 g. A slap on the back may produce a force of 4 g. Humans typically black out at 6 g, where fighter pilots wear special "g-suits" to withstand forces up to 9 g. A car crash with forces of 10 g can break human bones. A belted occupant in a car crash at 30 g could sustain broken ribs when held by the seat belt. Humans can tolerate localized g-forces in the 100s of g's for a split second, such as a slap to the face. Sustained forces above about 10 g can be deadly or lead to permanent injury.

RELATIVE INJURY RISK / 3RD PARTY EXPOSURE



This section provides a lead indicator for relative 3rd party injury risk based on accident reconstruction principles including conservation of momentum and relative vehicle mass ($\Delta V_2 \text{ (Change in velocity)} = \Delta V_1 * M_1 / M_2$). The calculation does not require the vehicles reach a common post-impact velocity. Calculated injury risk applies only to the occupants in another passenger vehicle or light truck as shown and not to any struck pedestrian or cyclist (bicycle or motorcycle).

Assumed 3rd Party Vehicle	3rd Party Vehicle Delta-V / Severity	Statistical Likelihood of Minor Injury Symptoms (lasting 2 days to 2 weeks)	Statistical Likelihood of Moderate Injury (lasting 5 to 6 weeks)	Risk of Serious Injury
Compact Car (1815 kg)	7.22 km/h	30% (Possible)	6% (Unlikely)	0% (Improbable)
Midsize Car (2260 kg)	5.80 km/h	19% (Unlikely)	4% (Improbable)	0% (Improbable)
Van/SUV/Light Truck (2720 kg)	4.82 km/h	15% (Unlikely)	2% (Improbable)	0% (Improbable)
Full Size Truck/SUV (3630 kg)	3.61 km/h	9% (Unlikely)	0% (Not Present)	0% (Improbable)



POTENTIAL RECALLS / SAFETY / DIAGNOSTIC SCAN DATA

This section lists any potential outstanding recalls, known safety ratings & issues, retrieved DTCs (Diagnostic Trouble Codes), and respective Freeze Frame impact data, if any.

Potential Safety Recalls

Vehicle safety recall information is received from Transport Canada and includes all known recalls associated with this particular vehicle model. Any listed recalls are potential recalls which can be verified as outstanding or not by providing the VIN to a local dealer's service department.

Recal Date: 2010-01-22

Recall Number: 2010012

Affected System: Other

Description: On certain vehicles, accelerator pedal movement may become rough, slow to return, or the pedal may stick in a depressed position. This could result in a loss of throttle control and a vehicle crash, causing property damage, personal injury or death.

Correction: Dealers will install a steel reinforcement bar to the accelerator pedal assembly. With this reinforcement in place, the excess friction that can cause the pedal to stick is eliminated.

Recal Date: 2011-02-24

Recall Number: 2011082

Affected System: Other

Description: On certain vehicles, the accelerator pedal may become stuck in the wide open position due to an unsecured or incompatible driver's floor mat. A fully depressed accelerator pedal may result in very high vehicle speeds and make it difficult to slow or stop the vehicle. This could result in a crash causing property damage and/or personal injury.

Correction: Dealers will modify or replace the accelerator pedal.

Note: This is an expansion of recall 2009290 for vehicles not previously included in the campaign.

Recal Date: 2012-08-01

Recall Number: 2012253

Affected System: Suspension

Description: On some vehicles, if the rear wheel alignment toe adjustment locking nuts are improperly tightened when an alignment is performed in the field, backlash may develop in the threaded portion of the suspension arm (shaft and turnbuckle), followed by the formation of rust. If this occurs, threads may wear, causing the arm to separate which could result in loss of vehicle control.

Correction: Dealers will inspect the arms and verify the tightening torque of the lock nuts, or replace the arms, as necessary.

Recal Date: 2013-09-25

Recall Number: 2013327

Affected System: Suspension

Description: On some vehicles, if the rear wheel alignment toe adjustment locking nuts are improperly tightened when an alignment is performed in the field, backlash may develop in the threaded portion of the suspension arm (shaft and turnbuckle), followed by the formation of rust. If this occurs, threads may wear, causing the arm to separate which could result in loss of vehicle control.

Correction: Dealers will inspect the suspension arm threads for corrosion. If corrosion is found, the arm(s) will be replaced. If no corrosion is found, an epoxy sealer will be applied to the suspension arm to inhibit corrosion.

Note: This recall supersedes recall 2012253. Vehicles that were repaired under the previous campaign will also need to be repaired under this campaign.

Recal Date: 2015-09-17

Recall Number: 2015409

Affected System: Structure

Description: On certain vehicles equipped with a water channel located underneath the cowl louver at the base of the windshield and above the windshield wiper link assembly, due to stresses applied to the water channel during the manufacturing process, a section of the channel in some vehicles may become deformed and prevent water from draining properly. If water were to collect in the channel, it may drip onto the joint that connects the windshield wiper link and wiper motor. Over time, water dripping on this joint could result in corrosion and/or wear to the joint, which could result in the separation of the wiper link from the wiper motor crank arm. If separation were to occur, the windshield wipers could become inoperative, which could limit the driver's visibility under certain operating conditions which may increase the risk of a crash causing injury and/or damage to property.

Correction: Dealers will replace the water channel, the wiper link and wiper motor crank arm with ones of an improved design.

Recal Date: 2015-10-21

Recall Number: 2015493

Affected System: Electrical

Description: On certain vehicles, inconsistent application of grease during the manufacturing process could cause the driver's side power window master switch to stick or become inoperative due to electrical contact point wear. This could cause debris to accumulate between the contact points, potentially resulting in an electrical short circuit. If a short circuit occurs, the switch assembly may overheat, produce smoke, melt and/or potentially lead to a fire causing injury and/or property damage.

Correction: Dealers will inspect the driver's power window master switch and apply a specialized grease that inhibits heat build-up, or replace the power window master switch circuit board, as necessary.

Note: This is an expansion of recall 2012-338.

Recal Date: 2016-02-17

Recall Number: 2016075

Affected System: Seats And Restraints

Description: On certain vehicles, in the event of a severe frontal collision, there is a possibility that the webbing of the seat belt in both second-row outboard seating positions could contact a portion of the metal seat cushion frame, become cut, and separate. If this occurs, the seat belt may not properly restrain the occupant, which could increase the risk of injury.

Correction: Dealers will install plastic protectors on the seat cushion frame in both second-row outboard seating positions.

Recal Date: 2016-08-11

Recall Number: 2016398

Affected System: Suspension

Description: On certain vehicles, the rear wheel suspension link arms could separate. This could result in loss of vehicle control and cause a crash resulting in injury and/or damage to property.


Correction: Dealers will replace both suspension link arms and encase them in epoxy to prevent future improper servicing.

Note: This recall supersedes recall 2013327. As part of the previous recall, dealers were to inspect the suspension arms for corrosion, replace them depending on their condition, and encase them in epoxy. Only vehicles which did not receive replacement of both suspension arms through the previous recall will need to be repaired under this campaign.


IIHS Crashworthiness / Safety Ratings

Insurance Institute for Highway Safety (IIHS) in the US publishes vehicle safety ratings based on actual crash tests. In each category, the possible ratings are: Good, Acceptable, Marginal, and Poor. Further vehicle research on safety ratings and features, reviews, tips and more can be found here: www.iihs.org/iihs/ratings.

Frontal Small Overlap

 Unavailable

Side

 Good

Frontal Moderate Overlap

 Good

Rollover

 Acceptable

Diagnostic Trouble Codes (DTCs)

Diagnostic Trouble Codes (DTCs) are set by a control module when it detects faults in its system through self-diagnostics. The following section lists DTCs retrieved from various control modules of the vehicle.



Engine Control Module (ECM)



No Issues Found



Transmission Control Module (TCM)



No Issues Found



Enhanced DTCs (Beta)



No Issues Found

Freeze Frame Data

Freeze Frame Data refers to a snapshot taken by a control module when it detects a fault in its system. The snapshot consists of measured values from various sensors and can be useful in determining the root cause of the fault. Note that not all vehicles support the items listed below and thus some values may be inaccurate.

No freeze frame data for DTCs (Diagnostic Trouble Codes) were retrieved from the ECM (Engine Control Module) or TCM (Transmission Control Module).



EXPOSURE / AUTO PHYSICAL DAMAGES

This section provides predictive loss and repair estimate/cost information. AI inputs: Trusted Repair Estimates, Max Delta-V, Impact Angle, Vehicle Model/Specs (weight, stiffness), Airbag Deployment status, DTCs, Damage Area/Level/Photographs (if any).

Repair Estimate (AI Prediction)	Salvage Value (80% of Market Value)	Prediction: Total Loss / Repairable	Value Certainty
CAD \$6,461.27	N/A	Likely Repairable	94%

How To Interpret This Information

The vehicle is predicted to be repairable. The algorithmic repair estimate is less than the estimated salvage (as damaged) value of the vehicle. The algorithmic repair estimate for this prediction considered "total repair estimates" from similar vehicles, with similar recorded impact configuration and severity. Photographs of the damaged vehicle were not used to generate the prediction.

The repair estimate does not replace a physical damage appraisal. Collision Sciences is working with strategic partners to develop an advanced repair cost prediction algorithm using a combination of photo-based estimating, diagnostically detected impact configuration and severity, and diagnostic issues requiring repair. The repair estimate may currently be used to predict a total loss or repairable condition, identify potentially exaggerated repair estimates and provides a contextual frame of reference for claim severity.



VEHICLE SPECIFICATIONS

This section lists basic vehicle details encoded by the VIN.

VIN

2T3BF4DV8AW038450

Year

2010

Make	Toyota	Model	RAV4
Trim	Base I4	Engine	2.4-L I-4 DOHC 16V
Made In	Japan	Style	4WD
Steering Type	Rack & Pinion	Anti-Lock Brakes	4-Wheel ABS
Fuel Type	Regular Unleaded	Fuel Capacity	60 L
Overall Length	4620 mm	Overall Width	1816 mm
Overall Height	1684 mm	Standard Seating	5
Curb Weight	1588 kg	Gross Weight	N/A
Highway Mileage	11 km/L	City Mileage	9 km/L

Event Data Disclaimer

It is important to note is that if a vehicle was spinning or rolling surrounding the collision, then the report's speed measurements would not accurately reflect the actual speed of the vehicle during/after it lost control; the speed measurement is typically based on the wheel speed sensor. Signs of this type of anomaly would be rapid changes in speed between the brief timing intervals. The reported speed may be an average of the four wheels; thus could also be skewed by spinning wheels. In combination with scene evidence, an expert could assess vehicle speed by analyzing the data via accident reconstruction and engineering analysis.

Users of the Collision Sciences service and reviewers of the reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Collision Sciences Inc. and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Collision Sciences Inc. expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the online services, evidence logistics, EDR data, EDR software or use thereof.

Injury Risk / Biomechanical Assessment Disclaimer

The estimated injury risks are calculated based on the recorded crash pulse, relative energy changes, known vehicle characteristics in standardized and real-world crashes, published databases, and recognized studies. The provided information can be used as a guide in settlement decisions but cannot be used to definitively prove the existence or non-presence of an injury. In cases with a very low risk of whiplash or other injury, claims can be identified for further investigation. Conversely, for cases with a high risk of whiplash or other injury, the claim can be expedited, since early treatment is often effective in reducing the long term prognosis.

Delta-V (Change in Velocity) has traditionally been used to correlate crash severity with risk of occupant injury (Augenstein et al., 2003; Bahouth et al., 2004; Sunnevång et al., 2009; Kononen et al., 2011). Injury tolerance and risk for various injury types based on real-world crashes with recorded crash data have been established (Gabauer and Gabler, 2006; Gabauer and Gabler, 2008; Kullgren and Krafft, 2008; Ydenius, 2010). Large-scale retrospective studies have also examined the relationship between minor severity crashes and the risk of occupant whiplash complaints, including studies in the U.S. (Tencer et al., 2001), Germany (Eis et al., 2005; Hell et al., 2002) and Sweden (Krafft et al., 2005). Injury risk studies consider the following risk factors: Crash configuration (front, side, rear, rollover), Delta-V = Change in velocity, Vehicle mass (size, weight), Vehicle stiffness, Vehicle geometry and engagement, Restraint system and its adjustment, Occupant seated position, Occupant profile (age, gender, previous injury), Number of WAD symptoms, and Psychological Distress. Structural damage and known whiplash thresholds overlap, indicating structural damage and repair cost are a poor predictor of minor injury threshold. Damage can also vary widely by vehicle model and impact configuration.

Generated by Collision Sciences

IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

CDR File Information

User Entered VIN/Frame Number	2T3BF4DV8AW038450
User	
Case Number	
EDR Data Imaging Date	08/19/2019
Crash Date	
Filename	2T3BF4DV8AW038450_ACM 2010 TOYOTA RAV4.CDRX
Saved on	Monday, August 19 2019 at 14:40:39
Imaged with CDR version	Crash Data Retrieval Tool 19.0
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.0
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
Event(s) recovered	Front/Rear (2), Side (2), Rollover (2)

Comments

No comments entered.

Data Limitations

CDR Record Information:

- Due to limitations of the data recorded by the airbag ECU, such as the resolution, data range, sampling interval, time period of the recording, and the items recorded, the information provided by this data may not be sufficient to capture the entire crash.
- Pre-Crash data is recorded in discrete intervals. Due to different refresh rates within the vehicle's electronics, the data recorded may not be synchronous to each other.
- Airbag ECU data should be used in conjunction with other physical evidence obtained from the vehicle and the surrounding circumstances.
- If the airbags did not deploy or the pretensioners did not operate during an event that meets a specified recording threshold, it is called a Non-Deployment Event. Data from a Non-Deployment Event can be overwritten by a succeeding event that meets the specified recording threshold. If the airbag(s) deploy or the pretensioners are operated, it is called a Deployment Event. Deployment Event data cannot be overwritten or deleted by the airbag ECU following that event.
- If power supply to the airbag ECU is lost during an event, all or part of the data may not be recorded.
- "Diagnostic Trouble Codes" are information about faults when a recording trigger is established. Various diagnostic trouble codes could be set and recorded due to component or system damage during an accident.
- The airbag ECU records only diagnostic information related to the airbag system. It does not record diagnostic information related to other vehicle systems.
- The TaSCAN, Global Tech Stream, or Intelligent Tester II devices (or any other Toyota genuine diagnostic tool) can be used to obtain detailed information on the diagnostic trouble codes from the airbag system, as well as diagnostic information from other systems. However, in some cases, the diagnostic trouble codes of the airbag system recorded by the airbag ECU when the event occurred may not match the diagnostic trouble codes read out when the diagnostic tool is used.

General Information:

- The data recording specifications of Toyota's airbag ECUs are divided into the following categories. The specifications for 12EDR or later are designed to be compatible with NHTSA's 49CFR Part 563 rule.
 - 00EDR / 02EDR / 04EDR / 06EDR / 10EDR / 12EDR / 13EDR / 15EDR / 17EDR
- The airbag ECU records data for all or some of the following accident types: frontal crash, rear crash, side crash, and rollover events. Depending on the installed airbag ECU, data for side crash and/or rollover events may not be recorded.
- This airbag ECU records post-crash data, and depending on the airbag ECU, may record pre-crash data.
 - If a single event occurs independently, the data for that event is recorded on a one-to-one basis.
 - If multiple events occur successively (within a period of approximately 500ms), the establishment of the recording trigger for the first event is defined as the "pre-crash recording trigger". Pre-crash data for the first event and post-crash data for each successive event is then recorded.
- The airbag ECU has two recording pages (memory maps) to store pre-crash data. Additionally, to store post-crash data, the airbag ECU has two recording pages for each accident type: two pages for frontal and rear crash, two pages for a side crash, and two pages for rollover event.
- The data recorded by the airbag ECU includes correlating information between each previously occurring event (i.e., information that clarifies the collision event sequence. This correlation information consists of the following items.
 - Time from Previous Pre-Crash TRG
 - Linked Pre-Crash Page
 - Time from Pre-Crash TRG
 - TRG Count

From: Brian from Collision Sciences [bhsu@collisionsscience.ca]
on behalf of Brian from Collision Sciences <bhsu@collisionsscience.ca> [bhsu@collisionsscience.ca]
Sent: 4/29/2020 5:53:38 PM
To: George White [gwhite@hubenterprises.com]
CC: Jason from Collision Sciences [jbayley@collisionsscience.ca]; Lacey Landry [llandry@hubenterprises.com]; Training [Training@hubenterprises.com]
Subject: Re: FW: Case HE-00029 (423870-00) - 2020 Ford Explorer
Attachments: 1FMSK8FH6LGB56713_ACM 2020 Ford Explorer.PDF; [Case HE-00029] 20200422 Claims 2020 Ford Explorer.pdf

Hello George,

Sorry about the delay. I got caught up in another phone call.

Here is the updated report. Please take a look and let me know if it is okay.
I am also attaching the Collision Sciences claims report that I first sent you.

Thanks!

Best Regards,

Brian Hsu, P.Eng.
CTO, CollisionSciences.ca
M: [1.647.898.4560](tel:16478984560)
2680 Matheson Blvd E. Suite 102
Mississauga, ON Canada L4W 0A5

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On Wed, Apr 29, 2020 at 10:59 AM Brian from Collision Sciences <bhsu@collisionsscience.ca> wrote:
Hello George,

Sorry for the late response. Here is the report containing the raw hexadecimal data. Thanks!

Best Regards,

Brian Hsu, P.Eng.
CTO, CollisionSciences.ca
M: [1.647.898.4560](tel:16478984560)
2680 Matheson Blvd E. Suite 102
Mississauga, ON Canada L4W 0A5

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Hrg. EX. 127

On Tue, Apr 28, 2020 at 9:42 AM George White <gwhite@hubenterprises.com> wrote:

Jason,

This is an Enterprise file and they again requested the Raw Data. Can you assist please.

Thank you,

George White

From: service=collisionsciences.ca@mail.collisionsciences.ca
[mailto:service=collisionsciences.ca@mail.collisionsciences.ca] On Behalf Of Collision Sciences
Sent: Wednesday, April 22, 2020 12:39 PM
To: George White <gwhite@hubenterprises.com>
Subject: Case HE-00029 (423870-00) - 2020 Ford Explorer

CrashScan

Accident Detector

Thank you for using CrashScan!

Please click on the button below to retrieve the PDF report.

Download
Report

Vehicle
2020 Ford Explorer

Investigator
HUB Enterprises
hubent@collisionsciences.ca

Event Data Recorder
Scan Completed

Emissions Testing
Scan Completed

Enhanced Diagnostics
Scan Completed

Operating System
Android
Version 1.12

The Collision Sciences team is always here to help.
Please contact service@collisionsciences.ca with your questions.

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CDR File Information

User Entered VIN	1FMSK8FH6LGB56713
User	NONE
Case Number	NONE
EDR Data Imaging Date	
Crash Date	
Filename	1FMSK8FH6LGB56713_ACM 2020 FORD EXPLORER.CDRX
Saved on	Thursday, April 23 2020 at 19:04:27
Imaged with CDR version	Crash Data Retrieval Tool 19.3.1
Imaged with Software Licensed to (Company Name)	Collision Sciences
Reported with CDR version	Crash Data Retrieval Tool 19.3.1
Reported with Software Licensed to (Company Name)	Collision Sciences
EDR Device Type	Airbag Control Module
ACM Adapter Detected During Download	No
Event(s) recovered	None

Comments

No comments entered.

The retrieval of this data has been authorized by the vehicle's owner, or other legal authority such as a court order or search warrant, as indicated by the CDR tool user on Thursday, April 23 2020 at 19:04:27.

Data Limitations

Data Imaging:

CAUTION: When imaging data directly from the RCM on a bench top, make sure the RCM is placed on a flat surface without any movement (static) while connected to and powered by the CDR interface. Not following the above guideline for bench top imaging could risk inducing new events to be recorded in the RCM and possibly overwriting a Non airbag deployment.

Note that the RCM Adapter Detected during Download parameter equal to "Yes" indicates that the EDR data was collected directly from the RCM. When equal to "No", it indicates that the EDR data was collected through the OBD II from the vehicle.

Restraints Control Module (RCM) Recorded Crash Event(s):

The RCM can store up to two crash events. Event types are categorized as follow:

1. Non deployment trigger event is an event in which EDR recording trigger threshold is met or exceeded (minimum of 5 mph (8kph) Accumulated Delta Velocity within 150ms interval), but no device(s) have deployed. The data from such event can be overwritten by subsequent events.
2. Airbag deployment event is an event in which frontal, side or curtain airbags have deployed. Note that such event cannot be overwritten or cleared from the Restraints Control Module (RCM). Once the RCM has deployed any airbag device(s), the RCM must be replaced.
3. Some RCM may also categorize Non airbag deployment event. This type is an event in which non airbag devices such as pretensioners, knee bolster etc., have deployed. Note that such event can be overwritten given a subsequent "deployment" event.

"Time zero" or Event Beginning of any event (First Record or Second Record) is defined as the first Algorithm wake up during that event. So all the Pre-Crash, At Event, Delta V Data, deployment times etc... are relative to "Time zero".

It is possible that conditions in a crash may result in an incomplete event data record.



Collision Sciences CLAIMS REPORT

EXPOSURE, RISK & DECISION SUPPORT

Claim Number: 423870-GK

Vehicle: 2020 Ford Explorer

VIN: 1FMSK8FH6LGB56713

Report Number: HE-00029

Generated: 2020-04-23 19:04:40



REPORT SUMMARY

This section provides an overview of the predictive analytics used for the estimation of claim severity, exposure, and fraud risk for the most recent crash or event sequence.



Repair / Loss Exposure

The market value range for the vehicle is USD \$48,287.22 - USD \$55,745.22. If a recent low velocity event occurred, the vehicle would be predicted to be repairable.



Occupant Injury Risk

If a recent low velocity event occurred, the estimated mean acceleration in the impact would be 1.51 g or less. Refer to the injury risk tables within the report to assess the injury risk for occupants in both the scanned vehicle and other vehicle, if applicable.

Studies have found that the g-forces in daily activities are as follows: 0.75 g - Automobile braking; 0.88 g - Flopping into a chair; 1.48 g - Driving up a curb; 1.80 g - Steep Climb in Airbus A300; 3.00 g - Sneeze; 3.50 g - Cough; 4.00 g - Slap on the back; 4.50 g - Titan Roller Coaster (Six Flags Theme Park).



Pre-Crash Data

An accident reconstruction analysis (such as a physics software simulation) may reveal pre-impact vehicle speeds. Final rest positions of vehicles may be required.



Flags / Loss Indicators

Low Risk (1 Alert): Low Velocity Impact



Diagnostic Scan Results

Event Data Recorder

Scan completed successfully. No crash data detected.

Emissions Testing

Scan completed successfully. No issues found.

Enhanced Diagnostics

Scan completed successfully. 2 enhanced DTCs found.



Safety / VIN History

Safety Issues

3 potential recalls found.

VIN History

1 title record found. Latest known mileage: 10 miles.



Recommended Action

Confirm the relevance of the absence of crash event data to the reported circumstances. A lack of crash event data indicates any of the following: the vehicle was switched off, or parked at the time of the impact, or the impact severity failed to meet the minimum EDR recording threshold.



CRASH DATA RECORDS

This section lists crash data records stored on the vehicle's event data recorder, if any. The date of data collection was 2020-04-22.

This vehicle is supported for recording crash event records. A successful diagnostic scan confirmed that no crash event data was stored on the Event Data Recorder (EDR). If a recent low velocity event occurred, the estimated mean (average) acceleration in the impact would be 1.51 g or less.

Event Data Applicability

A lack of relevant crash event data for the collision under investigation indicates any of the following:

1. The vehicle was switched off or parked at the time of the impact
2. The impact severity failed to meet the minimum required threshold for the EDR to record

EDR Trigger Thresholds

EDRs calculate the Delta-V (the sudden change in velocity), by integrating accelerometer data after being triggered at a predefined threshold, which can vary by manufacturer.

For Ford, a front/rear (longitudinal) or side (lateral) acceleration recording is expected to be triggered when the cumulative delta-v is over 5.0 mph, where the time series data will be recorded for up to 250 ms (sampled at 100 times per second).

Note that while 5.0 mph (1.51 g) is a regulated EDR trigger threshold, some vehicle makes/models are able to record crash events below this threshold, in certain situations. The following trigger thresholds are known for Ford vehicles:

Longitudinal (Front/Rear): 5.0 mph within 150 ms, or 1.51 g.
Lateral (Side): 5.0 mph within 150 ms, or 1.51 g.

If a recent Low Velocity Impact occurred, the overall transfer of forces to the occupant are expected to have been below the known EDR trigger thresholds. In this situation, consider further investigation, such as an IME (Independent Medical Examination).

An EDR (Event Data Recorder) is a function or device installed in a motor vehicle to record technical information about the status and operation of vehicle systems for a few seconds immediately before and during a crash for the primary purpose of post-crash assessment [1]. EDRs are regulated under [49 CFR part 563](#). Part 563 was established on August 28, 2006 ([71 FR 50998](#)) and requires that light vehicles [2] equipped with EDRs meet certain requirements for data elements, data capture and format, data retrieval, and data crash survivability. An EDR as defined by Part 563 is not required to record data such as audio or video recordings and does not log commercial operator-associated data, such as hours of service [3]. The requirements of Part 563 apply only to those light vehicles that are voluntarily equipped with EDRs that were manufactured on or after September 1, 2012.



FLAGS / LOSS INDICATORS

This section lists flags for further investigation based on known anti-fraud indicators and/or inconsistencies with reported circumstances.

Indicator

Description

Risk Alert

Drive Down	Frontal collision where the driver accelerates up to impact, with no pre-impact brake application.	N/A
No Avoidance Maneuver	No driver input for either brake or steering maneuver within the 2 seconds prior to impact.	N/A
Possible Distracted Driver	In a frontal collision, driver did not either brake or steer 2 seconds prior to impact.	N/A
No Pre-Impact Speed Reduction	Brake is only applied lightly with no meaningful reduction in speed.	N/A
Steered-To Sideswipe	Driver steers either left or right, causing an impact on the steered-to side.	N/A
Swoop & Squat	Driver steers to make a lane change and quickly applies brakes.	N/A
Panic Stop	Rear-end collision where driver brakes just prior to impact.	N/A
Possible Non-Recent Event	Accident recording may not be recent. Event data recorded 50 or more engine starts prior to data retrieval. Possible issues include: unrelated damage, past posting (no insurance at time of collision)	N/A
Possible Intentional Damage	Event data recorded on successive engine starts (sequential ignition cycles), or multiple events recorded on the same ignition cycle, where pre-crash data does not overlap.	N/A
Pre-Damaged Vehicle	Evidence of prior accident damage, where data of multiple events was recorded at different engine starts. Possible issues include: Unrelated Damage to Incident, staged Hit & Run, Phantom Accident, or Paper Accident.	N/A
Unbuckled Driver	Driver not wearing seat belt at the time of crash data recording.	N/A
Unbuckled Passenger	Front passenger not wearing seat belt at the time of crash data recording.	N/A
Emissions Test Failure	Vehicle failed emissions inspection due to insufficient sensor data or diagnostic trouble codes (DTCs).	No
Low Velocity Impact	An impact in which the mean acceleration is below 3.0 g	No
Odometer Rollback	Flags tampering through a discrepancy with mileage (odometer reading) for successive crash events. Example: for EDRs that store mileage at the crash event, if the most recent crash event has a lower mileage, this is evidence of odometer tampering.	N/A

Reported Circumstances

The flags in this section are generated through cross-referencing provided information (if any).

Indicator	Description	Diagnostic and Predictive Data	Reported Info
Reported Number of Occupants	Compares the reported number of occupants to the available seat sensor data.	N/A	N/A
Reported Maximum Pre-Impact Speed	Compares the reported travel speed with the pre-crash data and flags a variance of 10 km/h.	N/A	N/A
Reported Impact Speed	Compares the reported impact speed with the pre-crash data and flags a variance of 10 km/h.	N/A	N/A
Reported Pre-Impact Maneuver Variance	Compares the reported pre-impact motion with pre-crash data and impact angle for consistency.	N/A	N/A

Reported Appraisal Variance	Compares a provided appraisal estimate with the AI estimate and flags an appraisal variance of +15%.	0	N/A
Reported Airbag Deployment Variance	Determines whether airbags were manually removed to exaggerate damage by comparing recorded airbag deployment status.	Not Deployed	N/A
VIN Mismatch	Compares the VIN diagnostically retrieved from the vehicle to the the VIN sticker or provided VIN. Requires claim reference number.	1FMSK8FH6LG B56713	N/A
Image Integrity	Utilizes algorithms to identify digitally edited or altered parts in provided photographs.	N/A	N/A
Pre-Accident Vehicle Sale Attempt	VIN identified in online classifieds within the last 6 months.	N/A	N/A



1ST PARTY (SCANNED VEHICLE) INJURY RISK

This section predicts occupant injury risk ranging from minor to moderate/serious injury for frontal/side/rear collisions. The injury risk is the statistical incidence, likelihood, and probability of injury as tracked in real-world crash studies using event data recorders. The model uses a regression model of crash severity versus reported injuries as published in scientific studies.

Low Velocity Impact

If the claim under investigation is related to a recent Low Velocity Impact, the probability of injury would depend on the crash type.

Assumed delta-V: 4.97 mph

Occupant Detail	Statistical Likelihood of Minor Injury Symptoms	Statistical Likelihood of Moderate Injury	Risk of Serious Injury
Occupants in Frontal Impact	17% (Unlikely)	3% (Improbable)	0% (Improbable)
Rear-ended Occupants	34% (Possible)	7% (Unlikely)	0% (Improbable)
Occupants in Side Impact	34% (Possible)	7% (Unlikely)	0% (Improbable)

How To Interpret This Information

On a balance of probabilities, if the likelihood of injury occurrence is below 50%, it is suggested that an injury is more likely not to have occurred. With a high risk of whiplash or other injury, the claim can be expedited. Early treatment is often effective in providing the best probable outcome for patient recovery.

The injury prediction is based on the actual incidence rate or proportion of injury in tracked studies using data from real-world outcomes. The most important factor in predicting the risk of injury or death in a vehicle crash is the crash severity, which is expressed as the velocity change, or Delta-V, experienced by the vehicle during the crash. The Crash Investigation Sampling System (CISS) is the largest database in the world with over 100,000 cases linking injury outcomes with Delta-Vs, which are obtained from field reconstructions. The effects of occupant age, gender, and belt use on injury and fatality risk have been found substantial.

Low Velocity Impact Studies

Delta-V (Change in Velocity) has traditionally been used to correlate crash severity with the risk of occupant

injury (Augenstein et al., 2003; Bahouth et al., 2004; Sunnevång et al., 2009; Kononen et al., 2011). Injury tolerance and risk for various injury types based on real-world crashes with recorded crash data have been established (Gabauer and Gabler, 2006; Gabauer and Gabler, 2008; Kullgren and Krafft, 2008; Ydenius, 2010).

Large-scale retrospective studies have also examined the relationship between minor severity crashes and the risk of occupant whiplash complaints, including studies in the U.S. (Tencer et al., 2001), Germany (Eis et al., 2005; Hell et al., 2002) and Sweden (Krafft et al., 2005). In the minor severity studies it was found that occupant's reporting symptoms for greater than one month corresponded to an average delta-V of 12.4 +/-2.9 mph and a mean acceleration of 5.3 +/-0.6 g. Occupants that sustain soft tissue symptoms for less than one month, on average, corresponded to a delta-V of 6.4 +/-1.3 mph and a mean acceleration of 3.9 +/-0.5 g. The mean acceleration was found to be the best predictor for duration of symptoms.

The following studies describe the impact severity when no injury or only short-term consequences occur: Hell and Langwieder (1998) found that most occupants sustained short-term symptoms in impacts where the change of velocity was 10-15 km/h (6.2-9.3 mph). McConnell et al (1995) performed low-speed rear impacts with seven male volunteers, with velocity changes of up to 10.9 km/h (6.77 mph). None of the volunteers reported whiplash symptoms after a few days. Ono and Kaneoka (1997) and Siegmund et al (1997) found similar results from volunteer tests. In another study with volunteers (Eichberger et al 1996), where the sled impact velocities were 8-11 km/h (4.9-6.8 mph) and the mean deceleration 2.5 g, the volunteers suffered whiplash symptoms for approximately 24 hours.

Typical G-forces (Tolerance)

A hard acceleration or deceleration in a vehicle produces a sustained g-force in the range of 0.6 to 0.8 g. In everyday life, humans experience g-forces stronger than 1 g. The steep ascent of an Airbus A-300 would produce 1.8 g. A sneeze results in about 3 g of acceleration and typical cough produces a momentary force of 3.5 g. A luge athlete may experience forces of 5.2 g. Roller coasters are usually designed not to exceed 3 g but are known to reach 6.3 g. A slap on the back may produce a force of 4 g. Humans typically black out at 6 g, where fighter pilots wear special "g-suits" to withstand forces up to 9 g. A car crash with forces of 10 g can break human bones. A belted occupant in a car crash at 30 g could sustain broken ribs when held by the seat belt. Humans can tolerate localized g-forces in the 100s of g's for a split second, such as a slap to the face. Sustained forces above about 10 g can be deadly or lead to permanent injury.

For context, consider the following g-forces:

- 0.75 g - Automobile braking
- 0.88 g - Flopping into a chair
- 1.48 g - Driving up a curb
- 1.80 g - Steep Climb in Airbus A300
- 3.00 g - Sneeze
- 3.50 g - Cough
- 4.00 g - Slap on the back
- 4.50 g - Titan Roller Coaster (Six Flags Theme Park)
- 5.00 g - NASCAR vehicle on turn
- 10.0 g - Car crash that can break human bones
- 30.0 g - Ribs can be broken by seat belt
- 50.0 g - Death or serious injury

For safety, police demonstrate the beneficial use of a seatbelt. The videos below show the occupant kinematics experienced in a casual 5.0-7.0 mph collision: [Video 1](#), [Video 2](#).

3RD PARTY (OTHER VEHICLE) INJURY RISK



This section provides a lead indicator for relative 3rd party (other vehicle) injury risk based on accident reconstruction principles including conservation of momentum and relative vehicle mass (ΔV_2 (Change in velocity) = $\Delta V_1 * M_1 / M_2$). The calculation does not require the vehicles reach a common post-impact velocity. Calculated injury risk applies only to the occupants in another passenger vehicle or light truck as shown and not to any struck pedestrian or cyclist (bicycle or motorcycle).

LOW VELOCITY IMPACT

If the claim under investigation is related to a recent Low Velocity Impact, the probability of injury would be as follows and would depend on the other vehicle's weight and the crash type.

If the other vehicle is a Compact Car:

Example: Honda Civic, Hyundai Elantra

Assumed vehicle weight: 3190 lb. Assumed delta-V: 5.14 mph

Occupant Detail	Statistical Likelihood of Minor Injury Symptoms	Statistical Likelihood of Moderate Injury	Risk of Serious Injury
Occupants in Frontal Impact	17% (Unlikely)	3% (Improbable)	0% (Improbable)
Rear-ended Occupants	34% (Possible)	7% (Unlikely)	0% (Improbable)
Occupants in Side Impact	34% (Possible)	7% (Unlikely)	0% (Improbable)

If the other vehicle is a Midsize Car:

Example: Toyota Camry, Volkswagen Passat

Assumed vehicle weight: 3630 lb. Assumed delta-V: 4.52 mph

Occupant Detail	Statistical Likelihood of Minor Injury Symptoms	Statistical Likelihood of Moderate Injury	Risk of Serious Injury
Occupants in Frontal Impact	15% (Unlikely)	3% (Improbable)	0% (Improbable)
Rear-ended Occupants	30% (Possible)	6% (Unlikely)	0% (Improbable)
Occupants in Side Impact	30% (Possible)	6% (Unlikely)	0% (Improbable)

If the other vehicle is a Van/SUV/Light Truck:

Example: Dodge Grand Caravan, Ford F-150

Assumed vehicle weight: 5170 lb. Assumed delta-V: 3.17 mph

Occupant Detail	Statistical Likelihood of Minor Injury Symptoms	Statistical Likelihood of Moderate Injury	Risk of Serious Injury
Occupants in Frontal Impact	11% (Unlikely)	2% (Improbable)	0% (Improbable)
Rear-ended Occupants	19% (Unlikely)	4% (Improbable)	0% (Improbable)
Occupants in Side Impact	19% (Unlikely)	4% (Improbable)	0% (Improbable)

If the other vehicle is a Full Size Truck/SUV:

Example: RAM 2500, GMC Yukon

Assumed vehicle weight: 6050 lb. Assumed delta-V: 2.71 mph

Occupant Detail	Statistical Likelihood of Minor Injury Symptoms	Statistical Likelihood of Moderate Injury	Risk of Serious Injury
-----------------	-------------------------------------------------	-------------------------------------------	------------------------

Occupants in Frontal Impact	10% (Unlikely)	0% (Not Present)	0% (Improbable)
Rear-ended Occupants	15% (Unlikely)	2% (Improbable)	0% (Improbable)
Occupants in Side Impact	15% (Unlikely)	2% (Improbable)	0% (Improbable)



POTENTIAL RECALLS / SAFETY / DIAGNOSTIC SCAN DATA

This section lists any potential outstanding recalls, known safety ratings & issues, retrieved DTCs (Diagnostic Trouble Codes), and respective Freeze Frame impact data, if any.

Potential Safety Recalls

Vehicle safety recall information is received from Transport Canada and includes all known recalls associated with this particular vehicle model. Any listed recalls are potential recalls which can be verified as outstanding or not by providing the VIN to a local dealer's service department.

Recal Date: 2019-08-09

Recall Number: 2019391

Affected System: Brakes

Description: Issue: On certain vehicles, the cover for the manual park release (MPR) lever may not be installed. If the MPR lever is accidentally pushed, the transmission can be shifted out of PARK without a key in the ignition. Canadian regulations require a cover over this lever. Additionally, the vehicle may also be in Factory Mode, which disables warning alerts and chimes, and does not display the transmission gear position (under certain conditions). Safety Risk: A missing MPR cover could create a situation where the transmission can be shifted without a key in the ignition. If the transmission position is not displayed, a user may not know that the vehicle is not in the PARK position. If the parking brake is not applied, either of these situations could create a risk of a vehicle roll-away and increase the risk of a crash. Corrective Actions: The company will notify owners by mail and instruct them to take their vehicle to a dealer to inspect for the MPR cover. If missing, it will be installed. The dealer will also verify that the instrument cluster is not set to Factory Mode.

Recal Date: 2019-08-29

Recall Number: 2019437

Affected System: Seats And Restraints

Description: Issue: On certain vehicles, seats with a manual recliner may not meet the strength requirements of Canadian regulations. A seatback with reduced strength may not properly restrain an occupant in a crash. Safety Risk: A seatback that moves in a crash could increase the risk of injury. Corrective Actions: Ford will notify owners by mail and instruct them to take their vehicle to a Ford or Lincoln dealer for an inspection of the driver and front passenger seat recliners. For 2020 model year Explorer and Aviator, dealers will inspect the rear outboard seats. The seat structures will be replaced as required.

Recal Date: 2019-12-04
Recall Number: 2019606
Affected System: Fuel Supply

Description: Issue: On certain vehicles, the protective cover on the engine fuel line may not be long enough. As a result, the fuel line could rub against another fuel line. This could cause damage and result in a fuel leak. Safety Risk: A fuel leak in the engine compartment could result in a fire. Corrective Actions: Ford will notify owners by mail and instruct you to take your vehicle to a Ford or Lincoln dealer to inspect the protective cover on the fuel line. If the fuel line is not fully covered, the dealer will install and secure a new, longer cover.

Diagnostic Trouble Codes (DTCs)

Diagnostic Trouble Codes (DTCs) are set by a control module when it detects faults in its system through self-diagnostics. The following section lists DTCs retrieved from various control modules of the vehicle.



Engine Control Module (ECM)



No Issues Found



Transmission Control Module (TCM)



No Issues Found



Enhanced DTCs (Beta)



2 Codes Found: B14E508, B153308

Freeze Frame Data

Freeze Frame Data refers to a snapshot taken by a control module when it detects a fault in its system. The snapshot consists of measured values from various sensors and can be useful in determining the root cause of the fault. Note that not all vehicles support the items listed below and thus some values may be inaccurate.

No freeze frame data for DTCs (Diagnostic Trouble Codes) were retrieved from the ECM (Engine Control Module) or TCM (Transmission Control Module).



MARKET VALUE

This section provides an estimated market value for 2020 Ford Explorer . Estimate based on 115 similar vehicles sold between 2020-03-26 and 2020-03-31 within the range of USD \$48,287.22 - USD \$55,745.22.

Assumed Mileage

1,120 miles

Market Value

USD \$52,016.22

Time Period

6 Months

Value Certainty

99%



EXPOSURE / AUTO PHYSICAL DAMAGES

This section provides predictive loss and repair estimate/cost information. AI inputs: Trusted Repair Estimates, Max Delta-V, Impact Angle, Vehicle Model/Specs (weight, stiffness), Airbag Deployment status, DTCs, Damage Area/Level/Photographs (if any).

Repair Estimate (AI Prediction)	Salvage Value (80% of Market Value)	Prediction: Total Loss / Repairable	Value Certainty
USD \$0.00	USD \$41,612.98	Likely Repairable	94%

How To Interpret This Information

No repair prediction is available for the vehicle.



VIN HISTORY

The information used to compile this vehicle history section is aggregated from various government agencies, non-profit organizations, and industry sources. Access to the National Motor Vehicle Title Information System (NMVTIS) is facilitated through VinAudit Inc., an Approved NMVTIS Data Provider.

Title Records

This section lists title records associated with this VIN.

Date	State of Title	Type	Mileage
2020-01-03	Kentucky	Current	10 miles

How To Interpret This Information

The National Motor Vehicle Title Information System (NMVTIS) is an electronic system that contains information on certain automobiles titled in the United States. NMVTIS is intended to serve as a reliable source of title and brand history for automobiles, but it does not contain detailed information regarding a vehicle's repair history. All states, insurance companies, and junk and salvage yards are required by federal law to regularly report information to NMVTIS. However, NMVTIS does not contain information on all motor vehicles in the United States because some states are not yet providing their vehicle data to the system. Currently, the data provided to NMVTIS by states is provided in a variety of time frames; while some states report and update NMVTIS data in "real-time" (as title transactions occur), other states send updates less frequently, such as once every 24 hours or within a period of days. Information on previous, significant vehicle damage may not be included in the system if the vehicle was never determined by an insurance company (or other appropriate entity) to be a "total loss" or branded by a state titling agency. Conversely, an insurance carrier may be required to report a "total loss" even if the vehicle's titling-state has not determined the vehicle to be "salvage" or "junk." A vehicle history report is NOT a substitute for an independent vehicle inspection. Before making a decision to purchase a vehicle, consumers are strongly encouraged to also obtain an independent vehicle inspection to ensure the vehicle does not have hidden damage.

The Approved NMVTIS Data Providers (look for the NMVTIS logo) can include vehicle condition data from sources other than NMVTIS. NMVTIS data includes (as available by those entities required to report to the System):

- Information from participating state motor vehicle titling agencies.
- Information on automobiles, buses, trucks, motorcycles, recreational vehicles, motor homes, and tractors. NMVTIS may not currently include commercial vehicles if those vehicles are not included in a state's primary database for title records (in some states, those vehicles are managed by a separate state agency), although these records may be added at a later time.
- Information on "brands" applied to vehicles provided by participating state motor vehicle titling agencies. Brand types and definitions vary by state, but may provide useful information about the condition or prior use of the vehicle.

- Most recent odometer reading in the state's title record.
- Information from insurance companies, and auto recyclers, including junk and salvage yards, that is required by law to be reported to the system, beginning March 31, 2009. This information will include if the vehicle was determined to be a "total loss" by an insurance carrier.
- Information from junk and salvage yards receiving a "cash for clunker" vehicle traded-in under the Consumer Assistance to Recycle and Save Act of 2009 (CARS) Program.

Consumers are advised to visit www.vehiclehistory.gov for details on how to interpret the information in the system and understand the meaning of various labels applied to vehicles by the participating state motor vehicle titling agencies.

Disclaimer: The accuracy and reliability of the information supplied depends primarily on the reporting sources, and all entities involved in compiling this report accept no liability for any errors or omissions. Furthermore, all warranties, expressed or implied, including any implied warranties of merchantability or fitness for a particular purpose are hereby disclaimed.



VEHICLE SPECIFICATIONS

This section lists basic vehicle details encoded by the VIN.

VIN	1FMSK8FH6LGB56713	Year	2020
Make	Ford	Model	Explorer
Trim	Limited	Engine	2.3-L L-4 DOHC 16V
Made In	United States	Style	AWD
Steering Type	Rack & Pinion	Anti-Lock Brakes	4-Wheel ABS
Fuel Type	Gasoline	Fuel Capacity	18.60 gallons
Overall Length	N/A	Overall Width	N/A
Overall Height	N/A	Standard Seating	6
Curb Weight	N/A	Gross Weight	N/A
Highway Mileage	N/A	City Mileage	N/A
Invoice Price	\$48,125	MSRP	\$50,130

Event Data Disclaimer

It is important to note is that if a vehicle was spinning or rolling surrounding the collision, then the report's speed measurements would not accurately reflect the actual speed of the vehicle during/after it lost control; the speed measurement is typically based on the wheel speed sensor. Signs of this type of anomaly would be rapid changes in speed between the brief timing intervals. The reported speed may be an average of the four wheels; thus could also be skewed by spinning wheels. In combination with scene evidence, an expert could assess vehicle speed by analyzing the data via accident reconstruction and engineering analysis.

Users of the Collision Sciences service and reviewers of the reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Collision Sciences Inc. and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Collision Sciences Inc. expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the online services, evidence logistics, EDR data, EDR software or use thereof.

Injury Risk / Biomechanical Assessment Disclaimer

The estimated injury risks are calculated based on the recorded crash pulse, relative energy changes, known vehicle characteristics in standardized and real-world crashes, published databases, and recognized studies. The provided information can be used as a guide in settlement decisions but cannot be used to definitively prove the existence or non-presence of an injury. In cases with a very low risk of whiplash or other injury, claims can be identified for further investigation. Conversely, for cases with a high risk of whiplash or other injury, the claim can be expedited, since early treatment is often effective in reducing the long term prognosis.

Delta-V (Change in Velocity) has traditionally been used to correlate crash severity with risk of occupant injury (Augenstein et al., 2003; Bahouth et al., 2004; Sunnevång et al., 2009; Kononen et al., 2011). Injury tolerance and risk for various injury types based on real-world crashes with recorded crash data have been established (Gabauer and Gabler, 2006; Gabauer and Gabler, 2008; Kullgren and Krafft, 2008; Ydenius, 2010). Large-scale retrospective studies have also examined the relationship between minor severity crashes and the risk of occupant whiplash complaints, including studies in the U.S. (Tencer et al., 2001), Germany (Eis et al., 2005; Hell et al., 2002) and Sweden (Krafft et al., 2005). Injury risk studies consider the following risk factors: Crash configuration (front, side, rear, rollover), Delta-V = Change in velocity, Vehicle mass (size, weight), Vehicle stiffness, Vehicle geometry and engagement, Restraint system and its adjustment, Occupant seated position, Occupant profile (age, gender, previous injury), Number of WAD symptoms, and Psychological Distress. Structural damage and known whiplash thresholds overlap, indicating structural damage and repair cost are a poor predictor of minor injury threshold. Damage can also vary widely by vehicle model and impact configuration.

Generated by Collision Sciences

INVOICE

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Date	Description	Hours	Rate	Amount
2020/04/01		9.0	\$41.00	\$369.00
2020/04/02		8.0	\$41.00	\$328.00
2020/04/03		7.0	\$41.00	\$287.00
2020/04/04		5.0	\$41.00	\$205.00
2020/04/05		4.0	\$41.00	\$164.00
2020/04/06		8.0	\$41.00	\$328.00
2020/04/07		8.0	\$41.00	\$328.00
2020/04/08	See Attachment for Details	11.0	\$41.00	\$451.00
2020/04/09		7.0	\$41.00	\$287.00
2020/04/10		8.0	\$41.00	\$328.00
2020/04/11		0.0	\$41.00	\$0.00
2020/04/12		4.0	\$41.00	\$164.00
2020/04/13		7.0	\$41.00	\$287.00
2020/04/14		6.0	\$41.00	\$246.00
2020/04/15		10.0	\$41.00	\$410.00
		102.0	SUBTOTAL	\$4,182.00
			TAX RATE	13.00%
			TAX	\$543.66
			TOTAL	\$4,725.66

Hrg. EX.
128

Brian Chang-Yun Hsu Work Log

April 1, 2020 to April 15, 2020

April 1 [8:30am - 1:30pm; 2:00pm - 6:00pm] [9 Hours]

Added a new decorator in 'admin.py' for IP-based access control. Right now the list of IP addresses are hardcoded in the Python source code. Eventually, the list can just live inside a database table so that it can be modified easily.

Since IP-based access control would not work on mobile devices, it would be impossible to view or call other 'admin' APIs from the phone. We might need a backup using Basic auth to allow access from mobile networks.

Discussed a few more details about the iOS requirements with Kevin. Made a screenshot video on Android for his reference. Made AWS login credentials for him as well.

Got a 2001 Toyota Camry with scan failed. The server log indicated unknown part number, and the part number was not on the Bosch list. Used a fake replay file and replaced the part number. Bosch rejected it saying it was unsupported.

Got a 2004 Ford Excursion on K-Line. CDR wanted data bytes at specific locations, and those requests were not part of the request set. Manually generated the two responses and added them in the request JSON as well.

Replayed and checked a 2008 Toyota Tacoma scan. The delta-V resolution was updated and then the report was released.

Continued working on 'preview_report' page. Upon login on the dashboard, a refresh token (UUID) will be sent back to the client as a cookie. Once the login page redirects to the preview report page, the page uses that refresh token to get an access token (valid for 30 minutes). Then, all API calls made from that page would have a token to use, meaning these endpoints can be secured with the @token_required decorator.

April 2 [9:00am - 1:30pm; 2:00pm - 5:30pm] [8 Hours]

Generated a Bosch report for Theuns, for a 2018 Ford Fiesta.

Modified 'enter_claim_info.html' to call APIs using tokens as well. Refined 'preview_report.js' some more, by avoiding usage of var whenever possible.

Replayed the checked a 2006 Cadillac CTS on VPW. Investigated the ignition cycle issue some more. Fed consecutive data points back to the CDR, and yet the ignition cycles seemed to jump around. This made me think there was probably some bugs with the Bosch calculation. Released those reports.

Decimal	Hexadecimal	Ignition Cycle
1677200	FFFFF0	4
1677201	FFFFF1	3
1677202	FFFFF2	3
1677203	FFFFF3	2
1677204	FFFFF4	3
1677205	FFFFF5	2
1677206	FFFFF6	2
1677207	FFFFF7	1
1677208	FFFFF8	3
1677209	FFFFF9	2
1677210	FFFFFA	2
1677211	FFFFFB	1
1677212	FFFFFC	2
1677213	FFFFFD	1
1677214	FFFFFE	1
1677215	FFFFF	0

Replayed and checked a 2004 Chevrolet Silverado on VPW. Released the report.

Updated the claim number for a 2012 Jeep Wrangler for HUB. Emailed an updated version.

Replayed a 2011 Dodge Grand Caravan. Bosch indicated interruption during recording, which we mentioned in the report as well. Our report indicated a 17 km/hr rear-end collision, but that was not shown in the Bosch report at all. Released the report with the delta-V included.

April 3 [8:30am - 1:30pm; 2:00pm - 4:00pm] [7 Hours]

Modified 'management_report.py' to sort AmFam scans based on delta-V. Modified 'management_report.html' to show those delta-V values.

Went through the iOS app and located relevant code that would initiate a refresh action on the 'Results' page. Commented out that line and made sure the app would not call the 'get_all_by_email' endpoint anymore. Also tested the app with refresh enabled but with the API deleted from the Python code. The app would not crash or anything; the scan results page just would not update.

Went through API endpoints and removed unused ones.

Replayed and checked a 2006 Saturn Ion. The report looked good, but the longitudinal delta-V was off by 0.02 mph. Fed fake values back to the CDR to get a more accurate resolution. Updated the resolution in Python.

Adjusted 2 HUB scans. 1 was actually AmFam and 1 was a test scan.

Tested the Android app after HUB reported issues with entering long claim numbers. Found out that the claim info format in the database was '#####', which in turn limited the number of characters. The non-mandatory aspect of their app config just made the app accept whatever input, but I think the input filter was still capping the maximum allowed characters. Updated the claim number format in the database to 30 # signs, while leaving the claim number hint as just 8 # signs.

Modified the report fee for GCNA from \$395 back to \$300 temporarily.

Registered Orlando in Italy.

Looked into placing a loader icon on the preview report page. This would make the page display 'Loading...' before the user gets redirected to the login page. It would also only reveal page content when everything has been loaded, avoiding empty contents. The code borrowed from the invoice HTML did not quite work. Might have to revisit this later.

Went through the global MG report source code again to figure out what exactly can be done to reduce the processing time.

April 4 [10:00am - 3:00pm] [5 Hours]

Went through Xian's dashboard code some more to understand the behavior of datatables.

If a column width is specified, the page loses the responsiveness. If there is an error in building the table, the search bar and page buttons will not show up, but the table can still be display in some cases. There is no good way of adjusting the column widths as the 'table-responsive' class sort of dominates everything.

Made a copy of the existing 'datatables.js' file and made a new HTML file to display vehicle scans in the same format as the current management reports. However, right now the page can only call one API with an email address, so it is not exactly the same as a regular management. It will have to be converted to use organization IDs instead.

April 5 [11:00am - 3:00pm] [4 Hours]

Found a small bug in the new 'vehicle_scan.html' page, which was caused by the API that supplied the data. Fixed the API in Python.

Organized the report fee determination logic and workflow. Wrote a new 'set_report_fee' function that works in conjunction with 'get_report_fee' to write the fee for a particular scan. The function

will be triggered when the app calls the 'send_email' API. The code will write the report fee if the organization has a report subscription and the scan is not under review.

Added code in 'release_report' endpoint to set the report fee when a report is released, if the organization has a report subscription. Users on preview report track will use either Stripe or the GCNA track. Both tracks will have the report fee written at the time of purchase, so 'release report' does not have to handle them.

Added 'date_created' and 'date_modified' to database models in 'models.py'.

Merged 'api-security' and 'develop-brian' and resolved all conflicts. This should be done regularly until the token-secured APIs can be deployed.

April 6 [9:00am - 2:00pm; 2:30pm - 5:30pm] [8 Hours]

Noticed that 'report_purchase' table was not written to after a successful AmFam scan. Checked the code again and realized that origin.APP would not work. Moved the code to a different spot and corrected the issue.

Went through the code again and confirmed that the 'api-security' branch code is actually safe for deployment. The v1 API path is used by 'preview_report' and 'enter_claim_info', but these API calls are in JavaScript files and are under the hood. Clients will get an email after 'enter_claim_info' but the email will contain the same old link. The original endpoints in v0 are still there for backward compatibility.

Noticed that AmFam scans had the report fee written even when the scan is blocked for review. Updated the logic from 'is_under_reivew' to 'is_on_review_list' because AmFam scans would show up in the database as unchecked but is_under_review would not be true either.

Corrected the fees for GCNA to 300. Between the two branches and various files, there was one occurrence inside processor.py that needed correction. Now that everything is merged back into just one branch, it will be easier to manage going forward.

Found and corrected another bug with mClientOrganizationID in the Android app.

Registered for Xero and found the API documentation on making invoices. This will be revisited later.

Cleaned up images that were in the static folder. Moved them to the images folder and updated paths wherever needed.

The email templates are linking to an external website that hosts the two images in our emails. Download copies of the images and stored them in the images folder inside the static folder. Updated the links in the email templates to directly access the images from our own domain.

April 7 [8:30am - 1:30pm; 2:00pm - 4:00pm; 8:30pm - 9:30pm] [8 Hours]

Adjusted the logo on the dashboard login page for a better look. The logo needed some padding.

Researched about cron jobs in Flask / Python. Wrote some experimental scripts that would start and stop cron jobs, using Flask-APScheduler. Created a new Python file 'cron.py' that would host functions needed for jobs. Essentially, the production environment can be set up to automatically add a job to the scheduler upon deployment, and we can use our APIs to control and remove a cron job if something goes horribly wrong.

Looked through Xero's API documentation and realized that it needed OAuth 2.0 to work. That would mean creating a web page that will redirect user to first login with Xero, and then back to the custom website for subsequent operations.

Fixed an existing Toyota processing error that affected 10EDR modules. The error was due to the database not having

Wrote a small script that would retroactively write report fees into the 'ReportPurchase' database table. For AmFam, HUB, and OM, the 'date_created' column is set to the same as the 'date_created' value in the CDRData table, meaning the purchase date is the same as the scan date.

Modified 'regional_management_report.py' to pull report fees directly from the 'ReportPurchase' table instead of calculating it in real time. This should substantially speed up the global management report generation.

Looked into and implemented sorting a column based on data hidden in another column. This is useful for sorting currency columns. Added hidden columns for global revenue table with dollar value in Canadian dollar.

April 8 [8:30am - 1:30pm; 2:00pm - 6:00pm; 10:00pm - 12:00am] [11 Hours]

Looked into uploading PDF files directly to Amazon S3. If this can be achieved, the server would be able to generate PDFs, upload to S3, and then access the PDF via a direct link to add as an attachment to the Mailgun API call.

Used upload_fileobj function from old code written when testing image upload to AWS S3 buckets. Replaced the function with 'put_object', which can make a new file in an S3 bucket.

Called the test API and try to upload a claims report to S3 bucket, but kept getting 'Access Denied' from the error message. Added AWS_ACCESS_KEY and AWS_SECRET_KEY since my account had admin access. However, even with that, the error message still said 'Access Denied'. Ended up filing a support ticket with AWS support.

Moved HTML files that were relevant to the dashboard into the dashboard folder. Updated static pages such as 'purchase_report_success' and 'enter_claim_info_failure' to have consistent layout, based on the 'Retrieving Data...' spinning wheel.

Noticed that APIs used by the user registration page had not yet been secured. Refactored the code for 'user_registration' to call APIs with access tokens.

Updated the side panels of the dashboard, including paths and icons.

Googled a bit more and there might be a way to send PDFs via Mailgun without going through AWS S3 at all. Will try out a few things tomorrow.

Got a 2008 Chevrolet Impala scan. Increased the accuracy of the resolution used for calculating longitudinal delta-V and then released the report.

Looked into and added experimental code for a date picker based on jQuery. It turned out that jQuery did not actually have the date picker function. Instead, it was jQuery UI that would have it. The file that Xian was using did not have the date picker code either. Downloaded the JavaScript file for the date picker as well as its CSS.

Updated the jQuery custom theme CSS (probably generated by Xian) to match the color theme we have.

April 9 [8:30am - 1:00pm; 1:30pm - 4:00pm] [7 Hours]

Got a response back from AWS support. Similar to what I suspected, the MFA on the IAM prevented access to the bucket. With MFA enabled, the code will need to call 'get_session_token' with an MFA code to get a set of temporary credentials. However, this would be basically unscalable because the MFA must be supplied by a human.

Created a new IAM 'collision.sciences' in AWS and added permissions for S3 bucket full access. This IAM does not have the 'Force MFA' policy attached so it does not need to go through MFA. At the same time, the only permission it has is for S3, so the potential risk arising from not needing MFA is minimized.

Found a couple of forum posts and managed to email out a PDF as an attachment with Mailgun. This means we could email out claims report, management reports, and invoices all directly in emails. This also means some endpoints previously used for report generation could be eliminated altogether, which would be great for security.

Got a 1998 Chevrolet S-10 Pickup scan from HUB. This vehicle uses cable 888, which is baud 8192 and not supported by the OBDLink dongles.

Commented out all database related code written by Xian for now.

Got on a call with Richard and asked about API penetration testing and other vulnerability scans. He indicated that they would do greybox testing, where we provide a list of endpoints and expected input parameters, and they would try to exploit it. Whitebox testing is where they have access to the source code. Blackbox testing is where they do not even know the endpoints and must scan for them. Blackbox testing does not really have much value and would just waste a lot of time.

Checked and released a 2015 Nissan Altima report for AmFam. Emailed out two HUB reports that needed claim number updates.

Noticed that global revenue page was not displaying any information. Checked and updated the API.

April 10 [8:30am - 2:00pm; 2:30pm - 5:00pm] [8 Hours]

Read up on using localStorage in HTML and JavaScript. There seems to be opposing views on the Internet regarding storing information in localStorage. For now, I am using whatever Xian had programmed. The localStorage stores the username (email) and the organization ID. Not sure if this would post as a security threat, but would rather not get hung up on this right now.

Converted 'global_revenue' and 'vehicle_scans' to call APIs using an access token.

Created a separate API manager in 'api_manager.js'. The goal is to have this file shared by most other pages. It has the function to get a new access token using a refresh token.

Removed all local copies of the 'requestToken' function in the five JS files so far.

Experimented with having just one local copy of the access token inside api_manager and making all API calls grab the latest token beforehand. However, I could not get the module to return the value of the access token and instead kept seeing 'undefined' in the console.

Changed the structure of the function calls to receive an access token from the caller. Modified the callback function structure to be capable of getting an updated token passed to it, in case the previous call failed and a new token was received. This allows subsequent API calls to use the updated token instead.

Checked and released all 3 AmFam reports from today. The 2013 Mazda 3 had one event where front passenger was determined to be an adult, seat belt was fastened, but airbag was suppressed. Added a special check to override the suppression status.

April 12 [12:00pm - 4:00pm] [4 Hours]

Created 'role' and 'user_role' tables based on some old entries created by Xian. For now, there are only 'super admin' and 'admin' roles.

Super Admin: Jason, Brian
Admin: Theuns

Eventually, other client managers will have the admin roles as well.

Moved some of the code in 'myapplication.py' and '__init.py__' because the database creation code would not work otherwise.

Updated the 'enter_additional_info' page to call APIs with token. This is the page for Theuns to provide more information and to mark a report as billable.

Updated two APIs to return data based on user role.

April 13 [10:00am - 2:00pm; 2:30pm - 5:30pm] [7 Hours]

Created passwords and registered 19 users from Street Delivery. Used an existing Python code to parse user information from Excel to JSON, and then pasted the JSON to Postman to actually upload the data.

Updated the API that would receive the JSON data and added more checks and data processing, such as making sure the user emails are always stored in lowercase in the database.

Street Delivery users needed to be registered as AmFam for now, because iOS users would not be able to enter claim numbers if registered under Street Delivery with organization ID 53.

Moved the newly written registration code to 'processor.py' so that it could be shared by both 'register_user' in API (v1.py) and internal.py (for batch upload). Modified the return values so that the caller function could keep track of any error encountered as well as for which user the error occurred.

Got started with Xero integration. Created an app inside the Xero platform and received a client ID and a client secret. These two strings are stored in our 'config.py' file along with other similar API keys and secrets.

Copied the current 'global_revenue.html' page and added Xero-related API calls to get auth token. Got a CORS error from the API call. Googled and realized that the call must be initiated by a server, not a browser.

Moved the code to Python under a set of newly created custom APIs. These custom APIs will be the same as our other protected endpoints, with access token required.

Worked through the authentication process and managed to get an access token from Xero.

Got started with creating an invoice by POSTing to Xero's API.

April 14 [8:30am - 2:30pm] [6 Hours]

Continued and finished the invoice POST request for Xero. Figured out a few errors with small details such as invoice number and due date.

Checked a 2020 Land Rover Range Rover Velar scanned by GCNA. The scan produced some data bytes, while responses to a few requests resulted in 7FFFFFFF. Added a fake cable in the database so that the Python code would try to process it and mark the scan as unsupported.

Updated the global revenue page to match the current global management report.

Some of the table content would not have text wrapping by default. Figured out how to override styling options using 'white-space:normal' specification. This does not work if added to either 'theme.css' or the CSS used by Bootstrap. The only way this would work is to have the spec directly on the <td> element.

Updated the global revenue page to the draft, showing previous month information as well as links to send out invoices and to write amount to Xero. The action links are dummy placeholders for now.

April 15 [9:00am - 1:00pm; 1:30pm - 5:30pm; 10:00pm - 11:00pm] [10 Hours]

Got a response back from Richard regarding the preliminary API test. The test revealed minimal vulnerabilities, and the risk was considered low. The vulnerabilities were about cookies and HTTP headers. Not sure why cookies was picked out specifically, as most APIs just return a JSON without explicitly setting any cookie.

Helped Shekar set up Armor account.

Went through the workflow for personal vehicle scans and realized that users do actually get emails. Also, Android users scanning for AmFam would not have the 'Personal Vehicle' checkbox. Modified the app configuration directly in the database for an instant update.

Noticed that reports could actually be generated for personal vehicle scans. Updated 'report.py' to hide information as needed. Updated 'report.html' as well for the change.

Installed Flask-Talisman to help manage HTTP headers automatically. Upon enabling the package, AWS stopped being able to call the endpoint for health check. The error code was 302, which indicated redirection. Added the option to disable redirection on this specific endpoint and AWS was working fine.

Tested out pages and immediately noticed content being blocked due to the heightened security rules. Images hosted outside the current domain were not allowed, and Google fonts were not allowed, either. Modified the Content Security Policy to allow Google resources, but all inline styling was still blocked. Furthermore, 'view_report', which renders an HTML directly in the browser, was affected too. Adding this package proved to add way too much work load so the package is disabled for now.

Created a new database table to store billing information. Researched online and checked the old database tables on cPanel. Settled on having 3 addresses lines, city, region, country, and postal code. The primary contact is linked to the User table with user ID.

Manually added a couple of company's details into the newly created table. For now, the table has AmFam, HUB, and OM for scans. Oscar from CZ and GCNA's information was hardcoded in the Python code. Copied those texts into the database as well.

Worked with Shekar on various things for the dev environment. Deployed an Armor agent to the dev environment for testing.

Modified 'invoice.py' to read company name, primary contact, and company addresses from the database.

Reviewed and released two AmFam reports. Added checks for 0xFF in the Mazda processing code.

Found and fixed a bug on the user registration page. Re-registered a user from Street Delivery due to incorrect email address.